



August 15, 2008

Second Quarter 2008 Total Fund Review Arizona State Retirement System

Terry Dennison, Los Angeles

Economic Environment

Economic Highlights Second Quarter 2008

Positive

- Federal Deposit Insurance Corporation (FDIC) took over the failed IndyMac Bank
- Treasury and Fed took steps to rescue Fannie Mae and Freddie Mac
- Fed brought the federal funds rate to 2.0% and left the target rate unchanged
- The dollar stabilized around its 5-year low
- Market is in the process of re-evaluating oil price

Negative

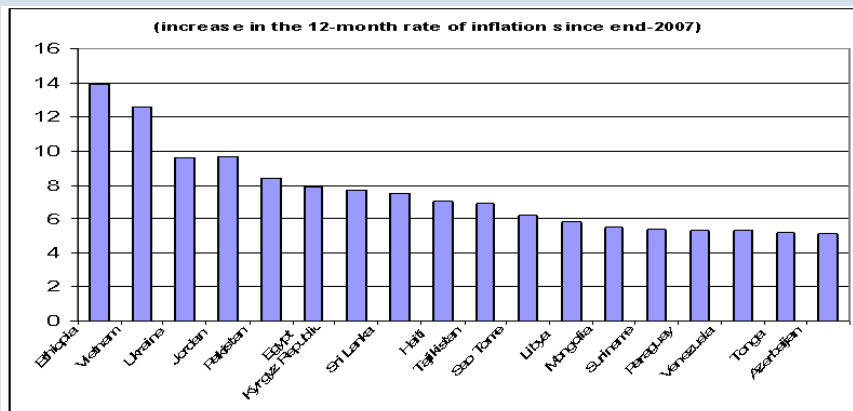
- The economy grew at an annual rate of 1.9% during the second quarter which was weaker than expected.
- Labor market remained weak; the unemployment rate rose to 5.5%
- Consumer confidence dropped to a 16-year low
- Housing market remained gloomy; foreclosures reached record levels and home prices continued to fall
- Consumer prices increased 5.0% on a year-over-year basis; core CPI remains contained

Focus: A Global Threat

Impact of Food Inflation and High Fuel Costs

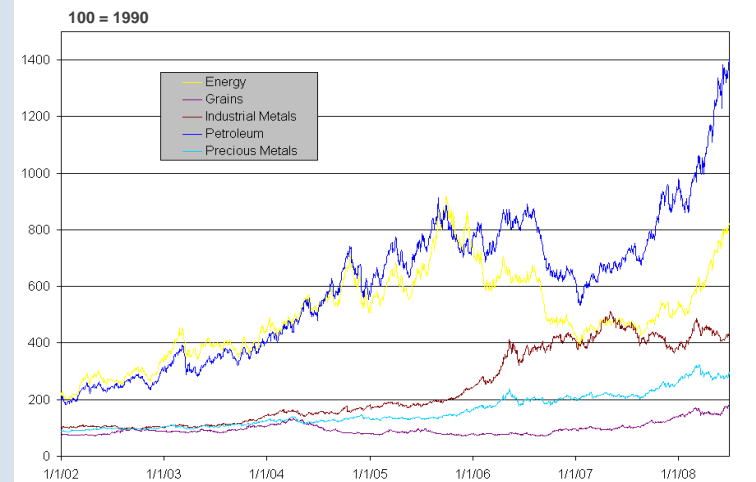
- Positive global macroeconomics and historically low global supply have spawned broad-based global demand for commodities
- Record-setting crude oil prices at nearly \$140/barrel have increased transportation and production costs of farm commodities
 - High petroleum costs have created a rival demand for alternative fuel further increasing food costs
- A weak US dollar makes US farm commodities an attractive option in foreign markets and is one of the factors contributing to the decrease in domestic supply
- High food and fuel prices have created substantial headline inflation effects in emerging and low-income countries

Acceleration of Inflation



Source: International Monetary Fund

Rise of Commodities



Source: Dow Jones

Total US Exports

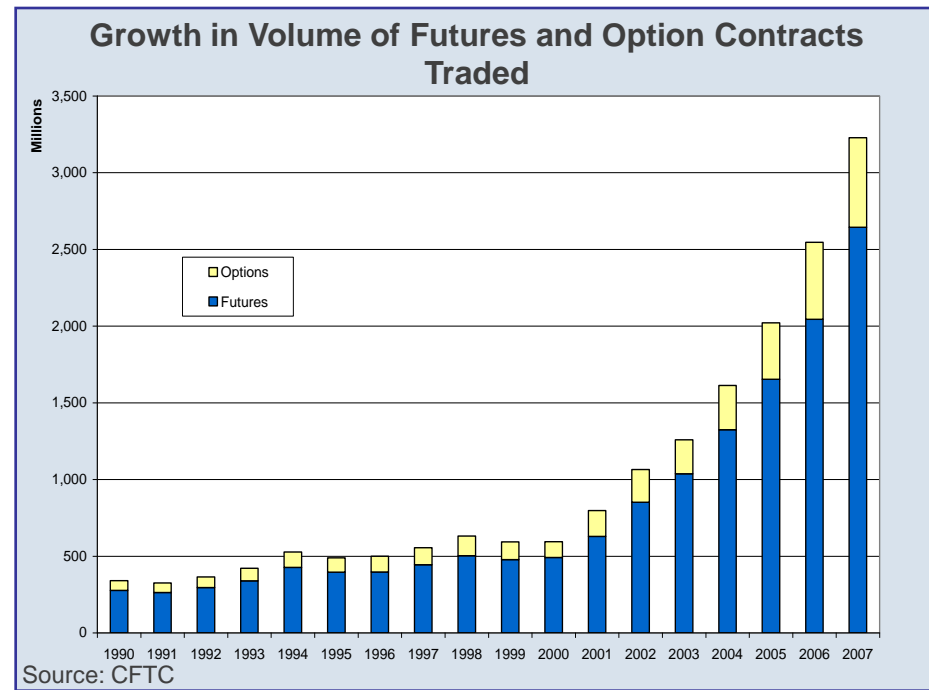


Source: Federal Reserve of New York

Focus: Regulation of Commodities

Regulatory Agency, CFTC, under Scrutiny by Congress

- The increasing price of oil and other commodities has prompted Congress to question the Commodity Futures Trading Commission (CFTC) whether excessive speculation is spiking commodity prices.
- The House Agricultural Committee is also examining whether the CFTC has the resources and man-power to handle the explosive \$4.78 trillion commodity futures market.
- While some claim that speculators add \$15 to \$70 per barrel to oil, the CFTC's active chairman, Walter Lukken, maintains that supply-and-demand fundamentals are, in fact, pushing prices.
- As Congress is becoming more cynical of CFTC's claim, the commodity regulators are now taking a more aggressive stance on regulation oversight.



Proposed Measures to Increase Regulation and Curb Speculators (Lieberman Bill)

- Overhaul information-reporting requirements and disclosures
- Bring OTC and foreign market exchanges under CFTC's regulation
- Expand international surveillance by requiring more information sharing from the London oil-trading arm of Atlanta's ICE Inc.
- Eliminate the "swaps loophole" that allows pension funds to invest in index funds that bypass current limits
- Establish narrower position limits that restrict the amount anyone can invest in a commodity

Source: Wall Street Journal & Connpost.com

Focus: Regulation of Commodities

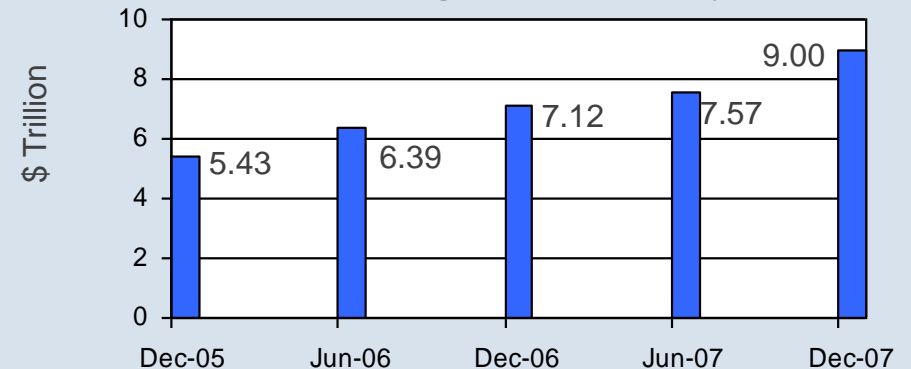
Effects of Speculative Investing on the Commodities Market

- The effects of speculative investing are further obscured by the lack of data in the larger \$9 trillion over-the-counter commodity derivatives (swaps) market
- Increasing in popularity, swaps have totaled an estimated \$260 billion in commodity-linked indexes since 2002
- CFTC states that 85% of index investing is done outside regulated futures exchanges
- Although Jeffrey Harris, CFTC's chief economist, notes that noncommercial traders are not making moves that precede big price changes, Congressional witnesses testify that the CFTC is missing significant transactions by swap dealers representing index investors and hedge funds

Source: Wall Street Journal

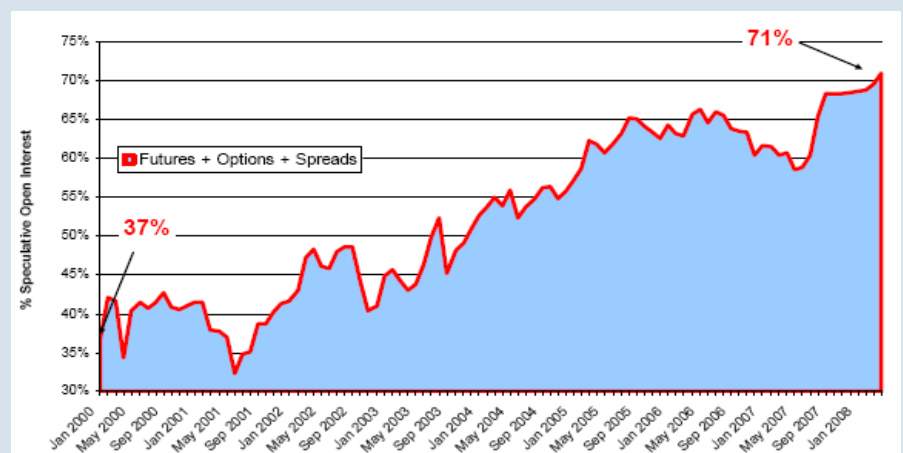
Note: Speculative positions are estimated by adding the long positions of CFTC classified non-commercial traders to that of swap dealers

Notional Amounts Outstanding of OTC Commodity Derivatives



Source: Bank for International Settlements

Rise of Speculation as a % of Open Interest on the NYMEX WTI Contract



Source: Committee on Energy and Commerce; CFTC

Focus: Fannie Mae and Freddie Mac

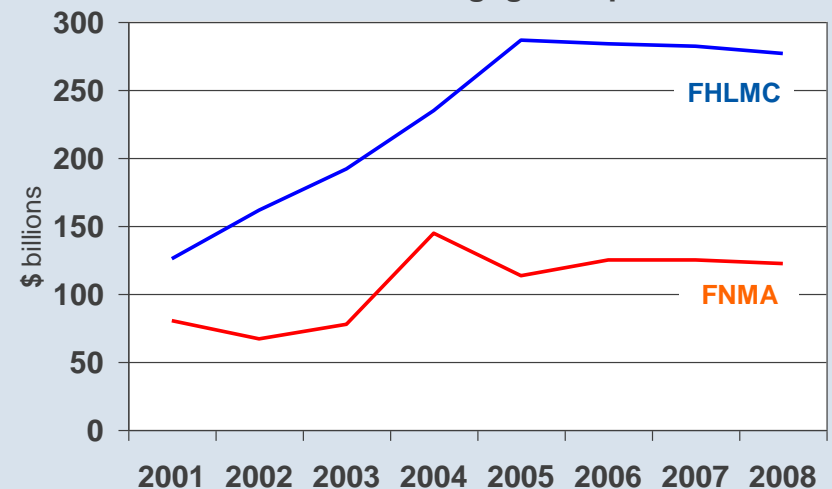
Current Issues

- Fannie Mae (1938) and Freddie Mac (1970) were created to supply the mortgage market with liquidity and enhance capital markets
 - In the late 1990s the mortgage guarantors diversified from their core business and began purchasing MBS issued by others
 - The AAA-rated Government Sponsored Enterprises (GSEs) were able to raise capital to significantly lower costs and operate with a low capital base
 - Around 2000 the GSEs started to transform US mortgage debts into assets resembling US Treasuries in order to sell these to foreign countries such as China and Japan
 - By early 2007, Fannie Mae and Freddie Mac were buying 50% of all “private label” MBS, creating exposure to subprime and alt-A loans, and in the process, highly leveraging their portfolios

Subprime and Alt-A Exposure

\$ Billions	FNMA	FHLMC	FN + FRE	% of total
Guarantee business (single family)	2,673	1,784	4,457	--
Retained portfolio	750	688	1,438	--
Subprime	344	93	437	7.4%
Alt-A	6	50	56	0.9%

Other Firms' Mortgages Exposure

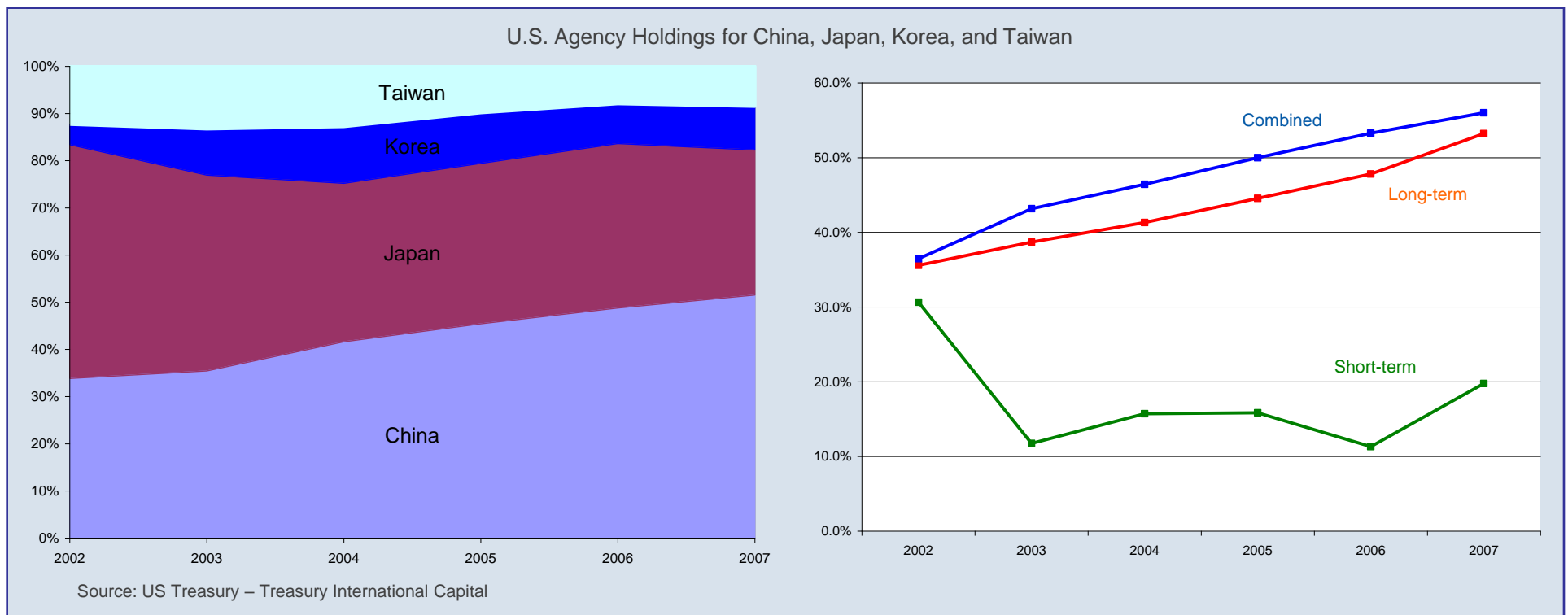


Source: Fannie Mae, Freddie Mac

Focus: Fannie Mae and Freddie Mac

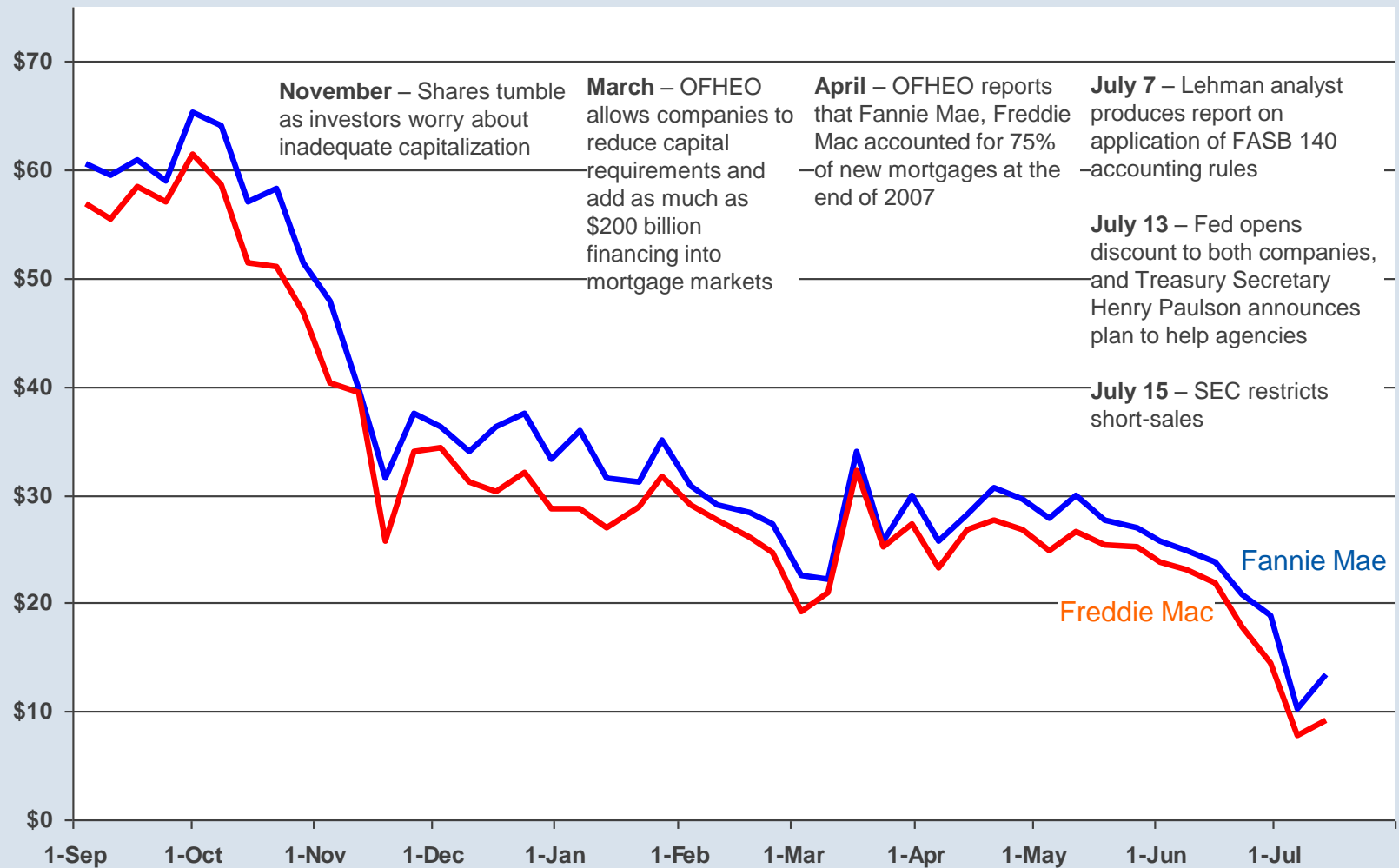
International Agency Debt Holders

- Central banks and financial institutions in China, Japan, Korea, and Taiwan are large holders of US Agency debt
 - 53.2% of long-term and short-term US Agency debt held by international countries are held by the countries listed above
 - China and Japan hold 28.9% and 25.9%, respectively, of long-term US Agency debt
- A US recession initiated by Fannie Mae and Freddie Mac would undermine Asia's export market, which is already experiencing a decrease due to the weaker dollar



Focus: Fannie Mae and Freddie Mac

Timeline of Recent Events



Source: Yahoo! Finance, Wall Street Journal

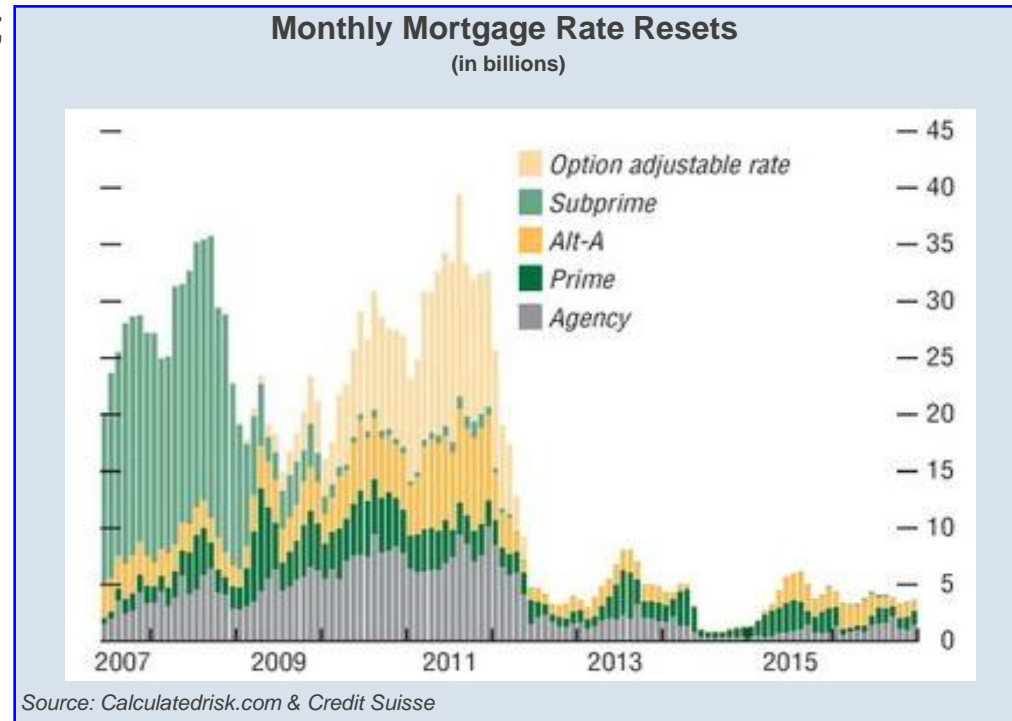
Focus: Fannie Mae and Freddie Mac

A Look at the Future

- It is beneficial to the federal government, taxpayers, and the financial system that GSEs continue to operate in their current form as independent shareholder-owned companies
- The regulatory agencies may require GSEs to stop buying securities, and may further require that these portfolios be reduced over time
- The possibility exists that shareholders will suffer further losses ranging from common stock losses to elimination of dividend payouts, all of which are critical issues considering the agencies' need to raise capital in the future
- However, further losses will erode the agencies' capital bases; in a worst-case scenario, GSEs will become insolvent and regulators would run the agencies
- A nationalization would bring GSEs debt into the federal government balance sheet, and public debt would increase significantly
- The International Monetary Fund estimates that the losses across the credit markets can increase from today's \$400 billion to \$1 trillion
- RBC Capital Markets assumes that up to 300 banks will fail over the next three years, which can be contrasted against the savings and loan crisis in 1980; more than 1,000 banks failed
- The new banking world will be consolidated, and fresh capital will be difficult to obtain
- However, the banks' retreat will open the door for new players, such as hedge funds and private equity groups
- This may present a new series of problems as hedge funds and private equity are subject to limited regulation, and the remaining banks will be forced to compete in this environment

Focus: Is the Credit Crisis Over? What Lies Ahead

- After a May market rally investors speculated that the end of the credit crisis and subprime fallout was near, but a disappointing June has left many wondering what to expect next
 - The International Monetary Fund speculates that by the end of the credit crisis, the global financial system could lose an additional \$600 billion
 - Sheila Bair, the FDIC chair, confirms speculation that US regional banks and “institutions of greater size than we have seen in the recent past” may not survive the credit crisis
 - 3 FDIC-insured banks failed in 2007; 5 have already failed by July 2008
 - 90 banks, with a total of \$26 billion in assets, are currently on FDIC’s watch list
 - Beginning in April 2009, hundreds of thousands of option adjustable-rate mortgages will reset, likely creating another wave of foreclosures



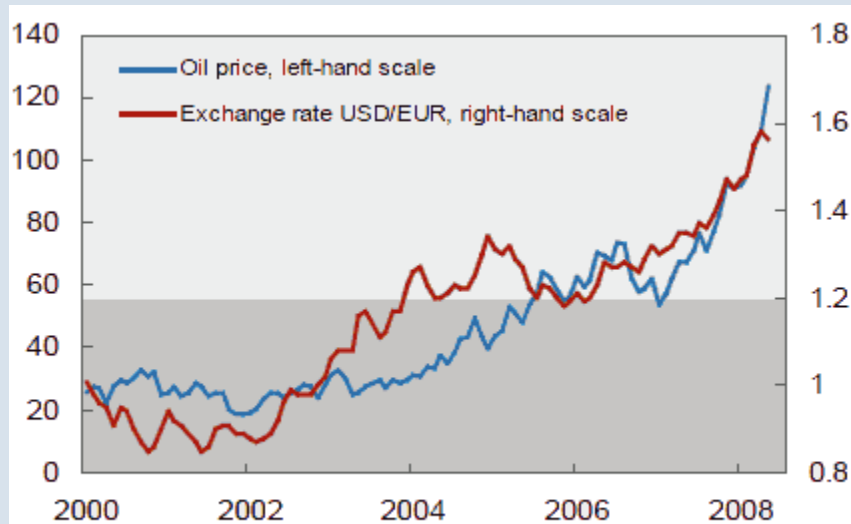
Source: MSNBC.com & Reuters

Focus: Currency

Oil and Dollar

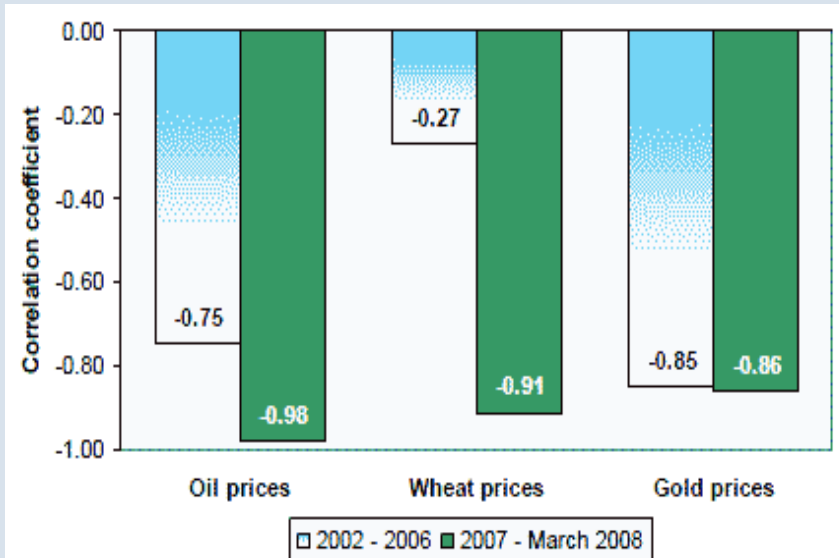
- The value of the USD and the price of oil has been almost perfectly inversely correlated for the past year
- Some oil industry experts claim the fundamentals in the oil industry have not changed since oil was \$65/barrel. In their opinion, the price rise could be due to the USD value or financial manipulation

Oil Price (Brent Blend) in USD & exchange rate USD/Euro
Jan 2000 – May 2008



Source: Thomson Reuters

Commodity Correlations with the US Dollar



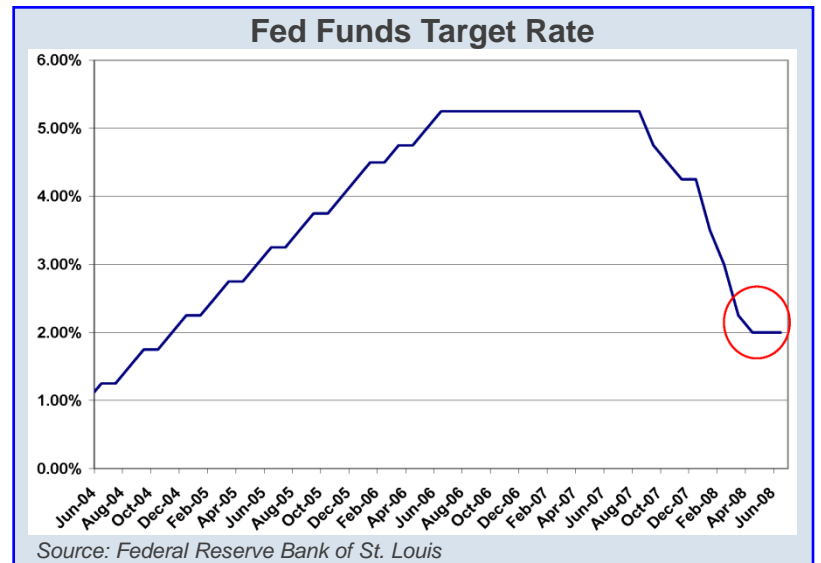
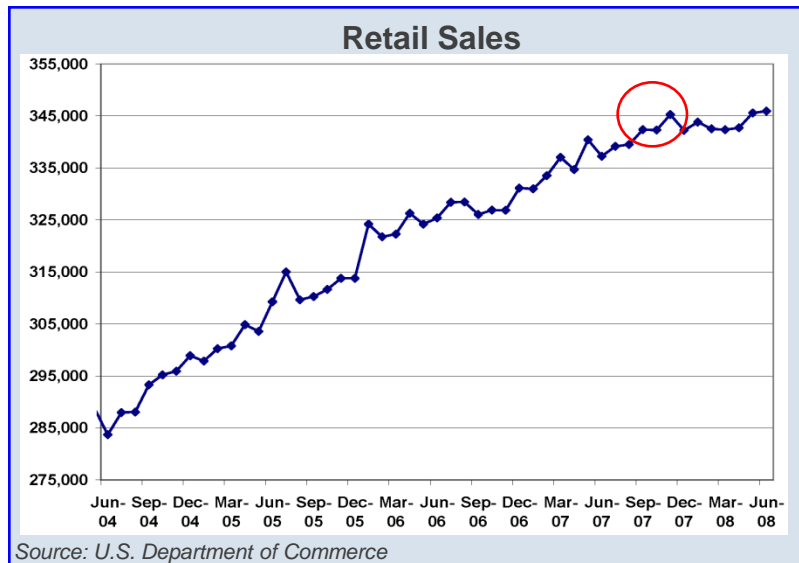
Source: TD Economics

* Trade weighted against major currencies

US Economic Update

Second Half Rebound Likely?

- The advance estimate of annualized second-quarter GDP growth was 1.9%. The increase reflected positive contributions from exports, personal consumption expenditures, and federal government spending.
- The Fed lowered the federal funds rate and the discount rate by 25 basis points to 2.00% and 2.25% respectively during the quarter. Strained credit conditions and uncertainty about the inflation outlook remain.
- After rising a stronger-than-expected 1.0% in May because of consumers spending their rebate checks, June retail sales rose only 0.1% and came in below expectations. Auto sales contributed to the decline and fell 3.3%

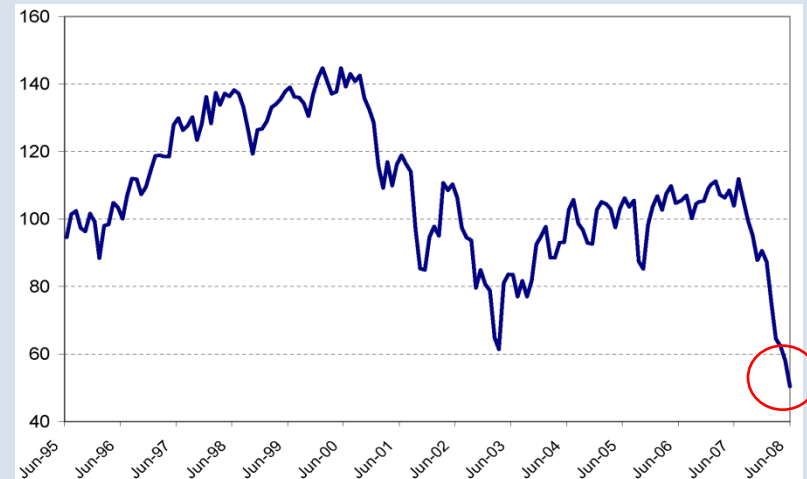


US Economic Update

High Inflation + Continued Employment Declines

- In June, the consumer confidence index declined to 50.4, which was the lowest reading in 16 years. The measure, which was the fifth-lowest reading ever, signals consumers' concern about the economic outlook
- Headline inflation surged 5.0% in June, the biggest year-over-year rise since 1991, due mostly to surging energy prices. Core inflation was up 2.4% year-over-year, above the Fed's preferred range of 1.5 – 2.0%
- The unemployment rate stayed at 5.5% in June. For the year-to-date period, nonfarm payrolls have fallen by 438,000. Job losses continued in construction and manufacturing while health care and mining added jobs

Consumer Confidence (RHS)



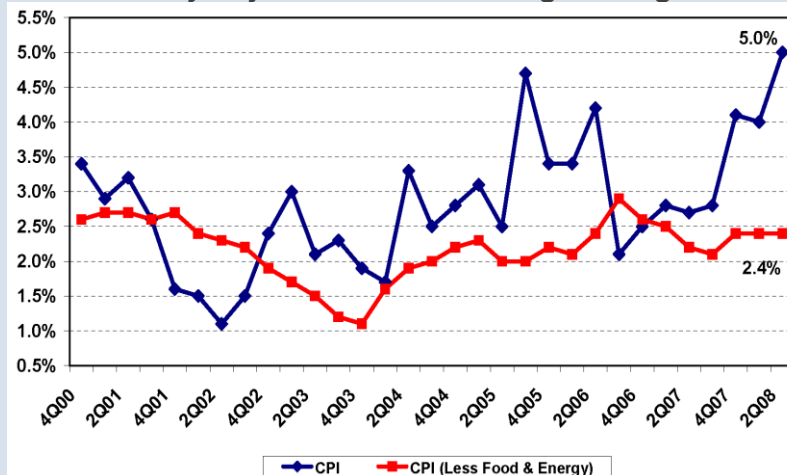
Source: Energy Information Administration

Civilian Unemployment Rate



Source: Federal Reserve Bank of St. Louis

Seasonally Adjusted YOY Percentage Change in CPI



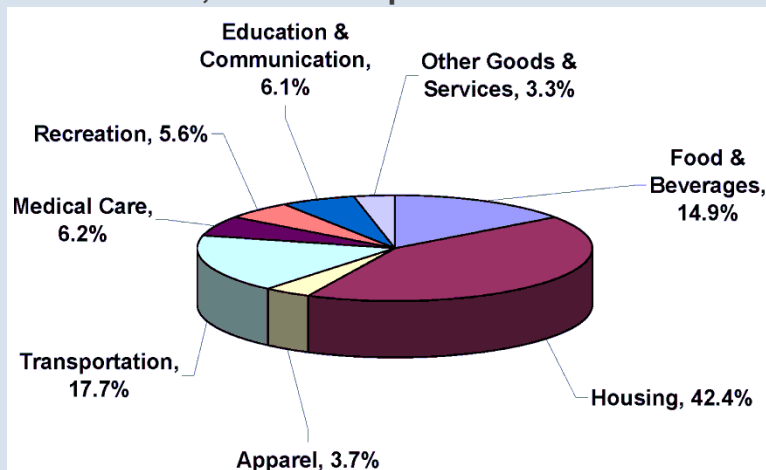
Source: U.S. Department of Labor Statistics

US Economic Update

Inflation Impact on the World

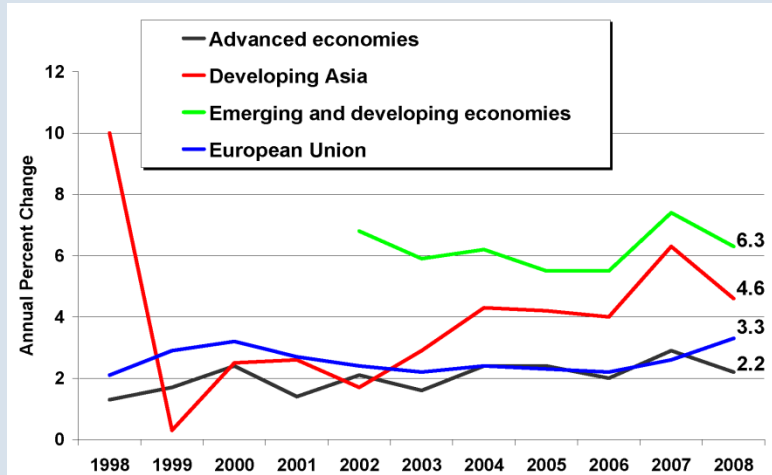
- In the US, food and energy account for over 25% of the CPI index. In emerging market economies, food alone accounts for over 30%
- Morgan Stanley reported that inflation exceeds 10% in around 50 economies, many of them emerging market economies. Overall, 42% of the world's population is currently affected by double-digit inflation rates
- In the developed world, consumer price inflation rose to a 7-year high in May as energy costs rose; annual inflation in the 30 OECD member countries rose to 3.9% – the highest level since June 2001. The IMF believes that the divergence in growth prospects between advanced and developing economies will continue

CPI-U, Relative Importance Dec 2007



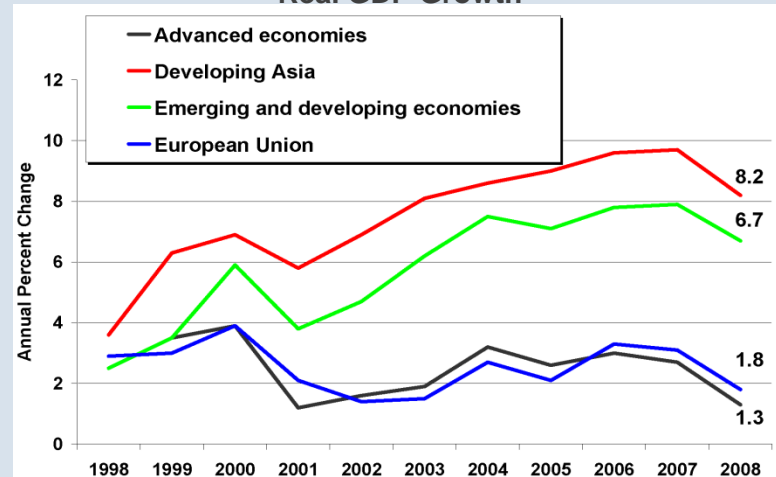
Source: www.bls.gov

Inflation Rate, End-of-Period Prices



Copyright: ©IMF, 2008 Source: World Economic Outlook (April 2008)

Real GDP Growth

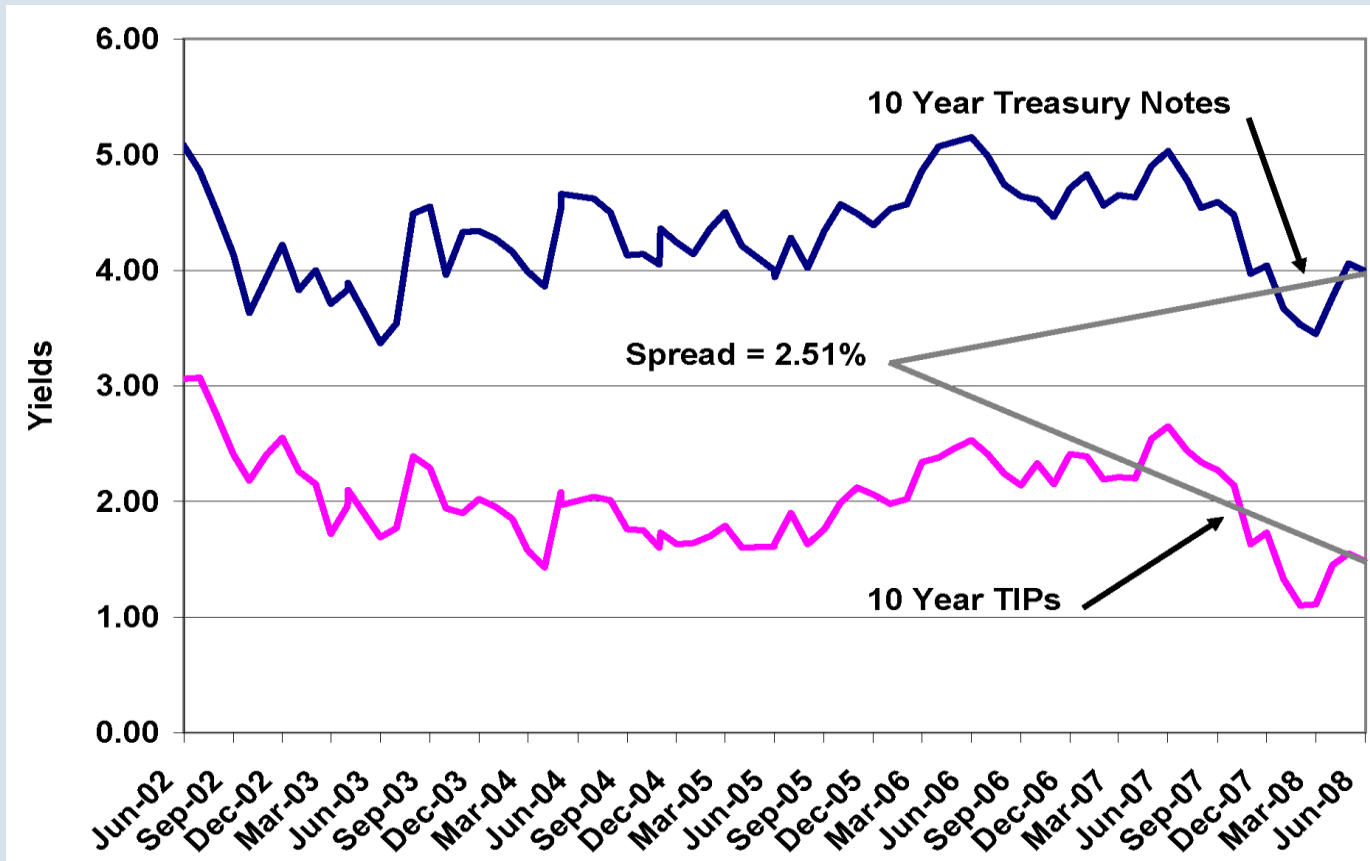


Copyright: ©IMF, 2008 Source: World Economic Outlook (April 2008)

US Economic Update

Inflation Expectations

Implied Breakeven Point



Source: Federal Reserve

Securities Markets

Market Highlights Second Quarter 2008

Positive

- Mid-cap stock returns positive across styles
- Growth outperformed core and value across all market capitalizations
- Energy, utilities and materials were strongest-performing sectors
- TIPS outperformed Treasuries by 74 basis points
- S&P GSCI soared 28.7%; energy and petroleum were top performers
- Hedge funds ended with positive results across most sectors

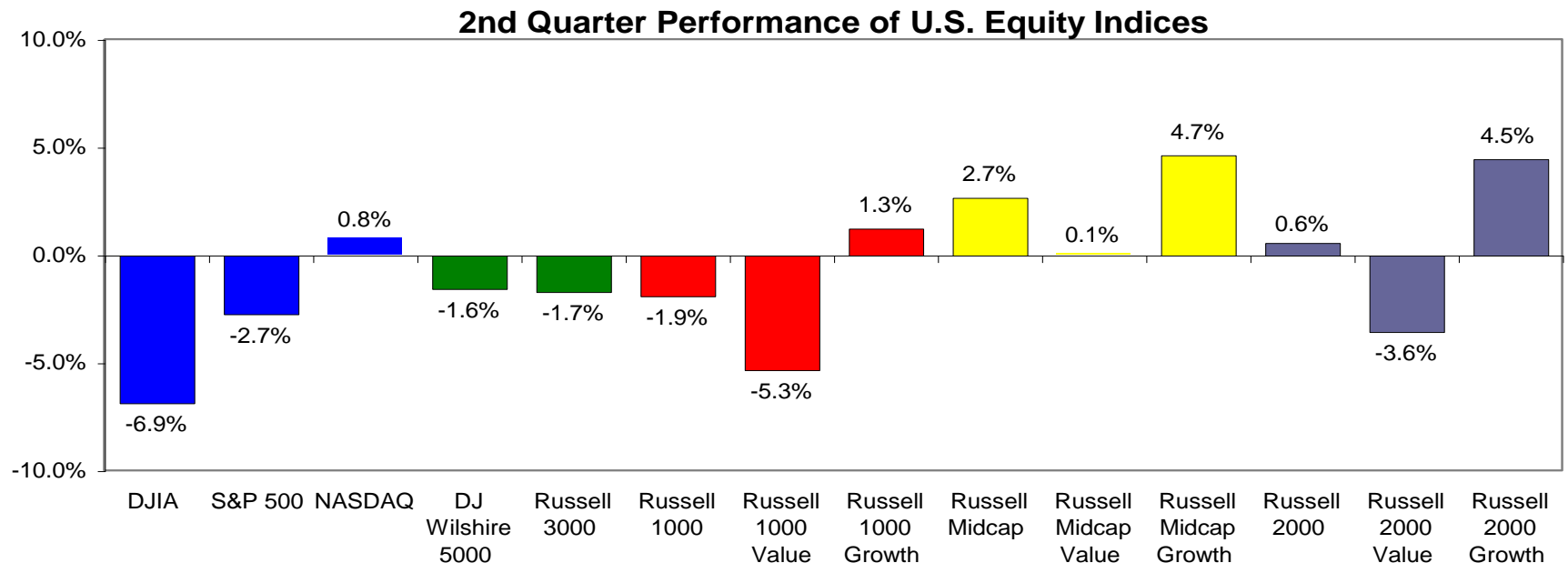
Negative

- Domestic equity markets fell sharply in June as higher oil prices renewed inflation concerns (S&P −2.7%)
- Financial services suffered most as solvency concerns continued
- Most international equity markets posted losses (MSCI EAFE −1.9%)
- Emerging markets saw mixed results across regions (−0.8%)
- Bond markets posted negative returns as the yield curve moved up
- Equity REITS lost 4.9%

US Equity Struggles Across All Market Caps

Value Posted Losses While Growth Stocks Posted Gains

- Despite early gains in April, rising commodity prices (particularly crude oil) coupled with inflation fears and lingering mortgage-related problems weighed heavily on markets, ending the quarter on a negative note
- April experienced the best monthly return in 5 years, while June posted the largest monthly decline in approximately 6 years
- Unlike from first quarter 2008, growth-oriented stocks generally outperformed their value counterparts
- Mid- and small-cap equities generally outperformed larger-cap equities

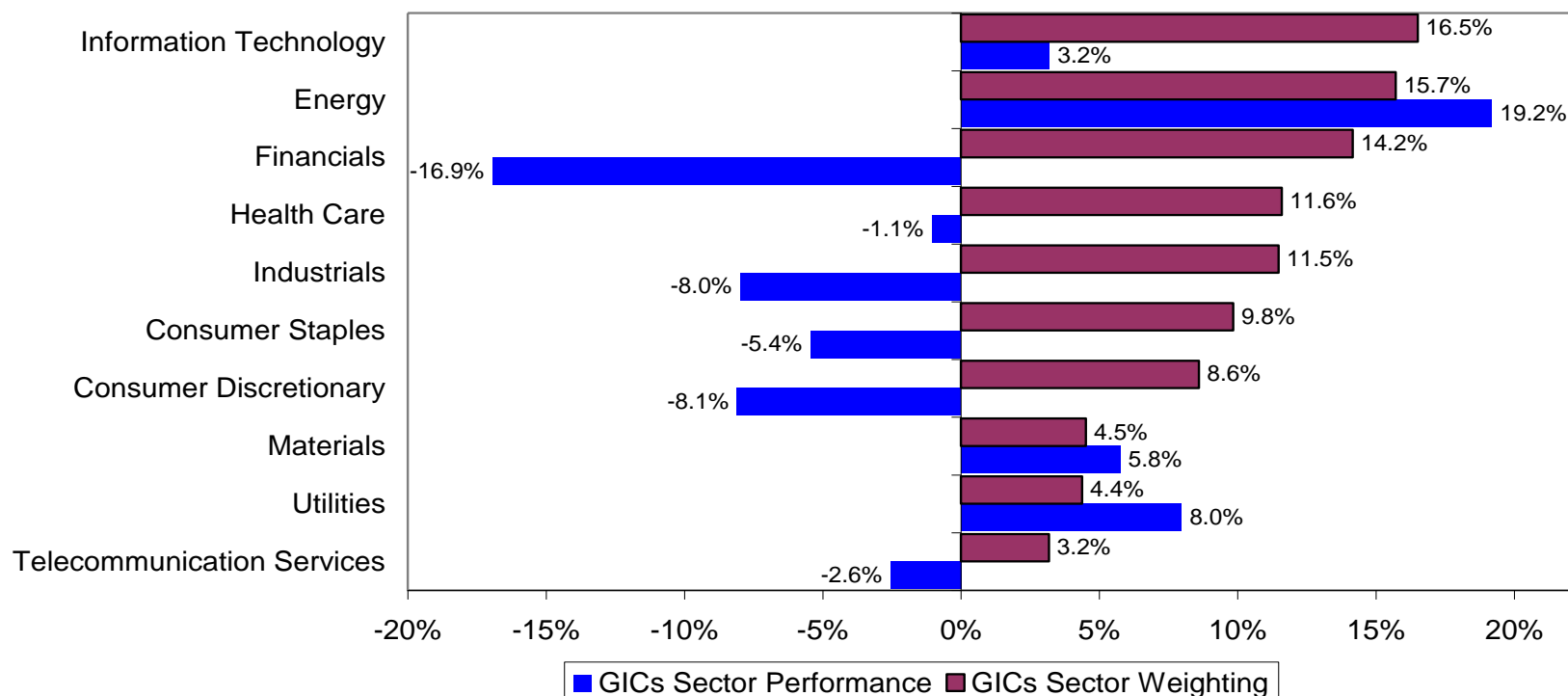


Large-Cap Stock Outperformed Mid- and Small-Cap

Poor Performance in Value Sectors

- Six of 10 sectors reported losses for the quarter
- Performance of the financial sector rebounded in April as the Fed cut rates by 25bps while large banks raised capital or announced plans to do so. However, inflation concerns, increasing unemployment rate, and lackluster earnings reports from large financial institutions drove the financial sector to be the poorest-performing sector for the quarter

Second Quarter GICS Sector Performance - Russell 1000 Index

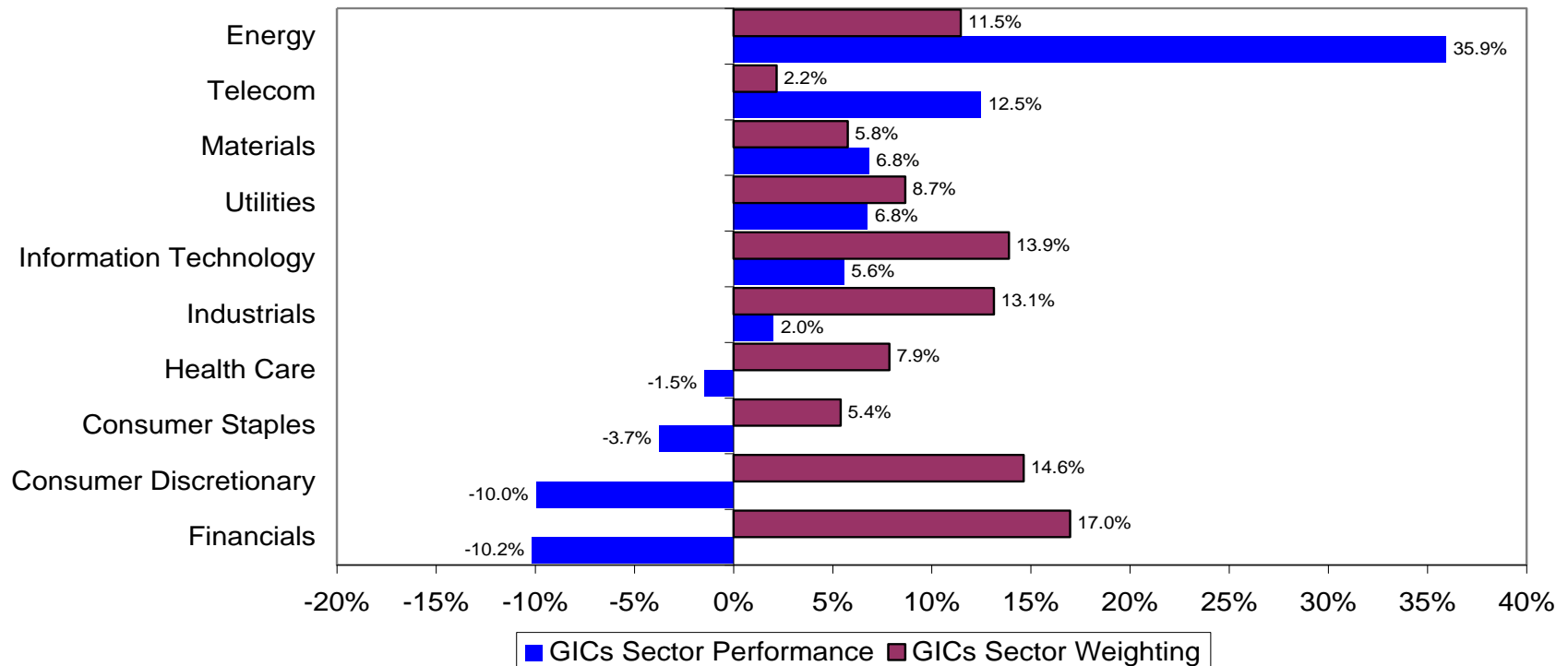


Mid-Cap Stocks Rebound in the Second Quarter

Energy Stocks Perform Strongly

- Six of the 10 sectors posted gains for the quarter
- Energy and telecom were significant outperformers
- Consumer discretionary and financials lagged because of continuing turmoil in the housing and credit markets
- Growth stocks outperformed value stocks

Second Quarter GICS Sector Performance - Russell Mid Cap

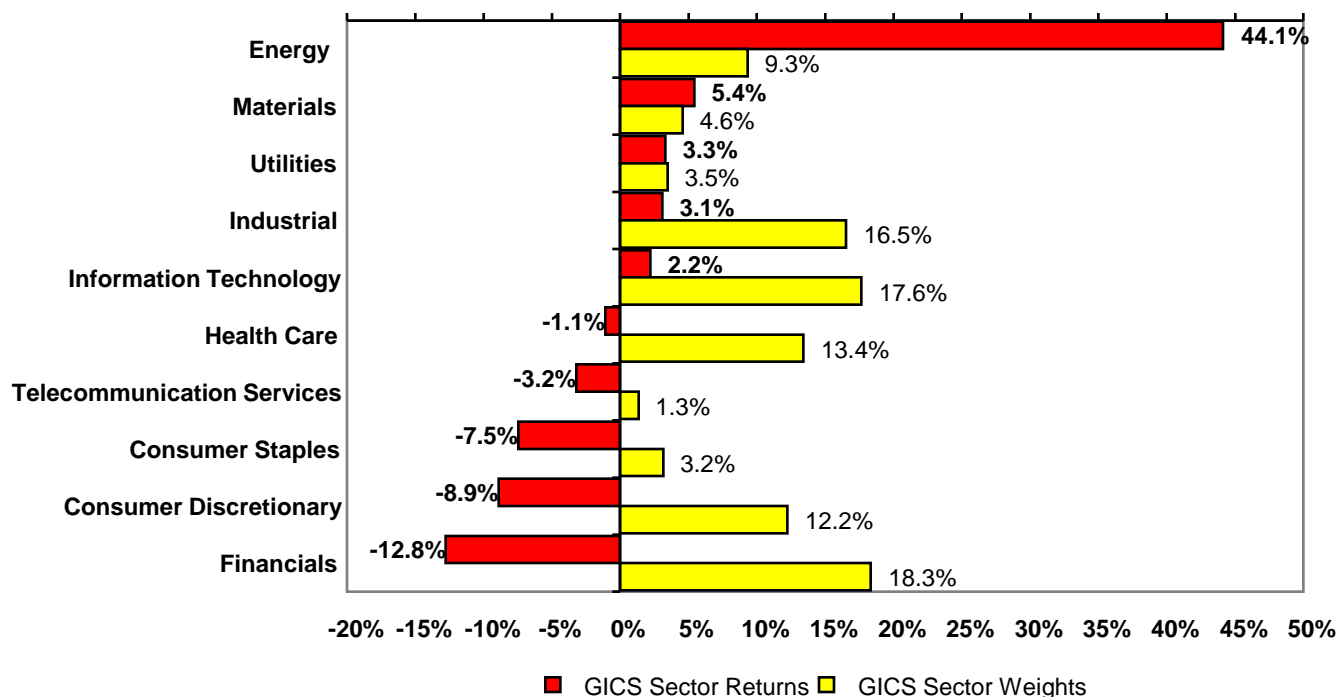


Small-Cap Stocks Finish with Small Gain

Poor Performance in Financials and Consumer Discretionary

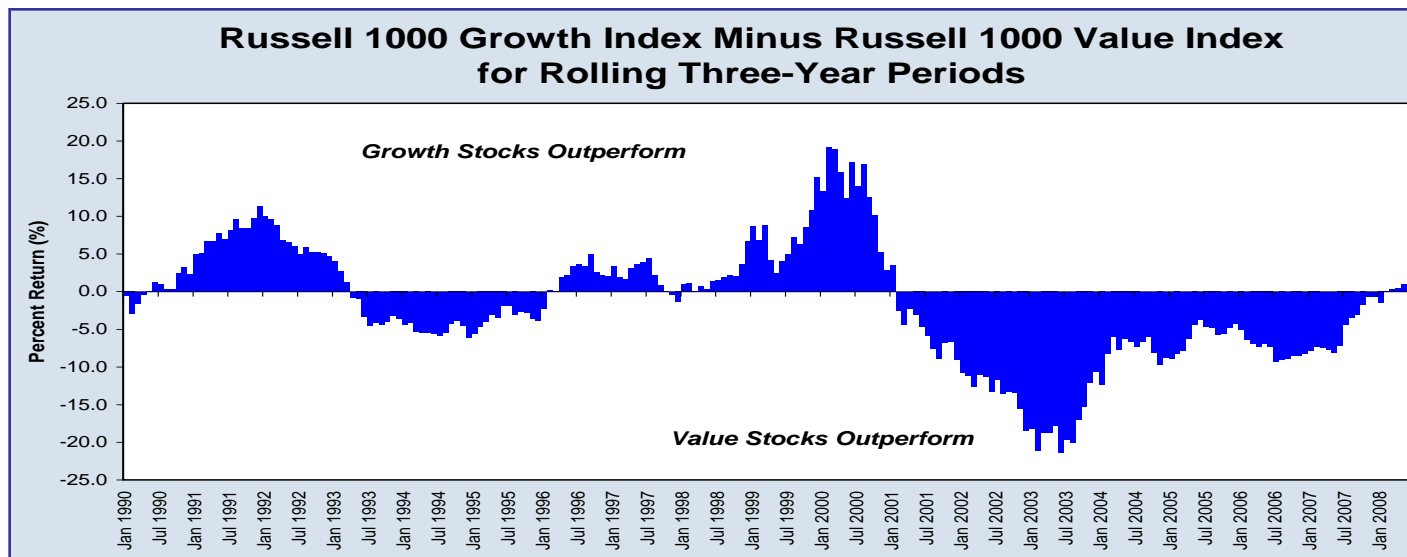
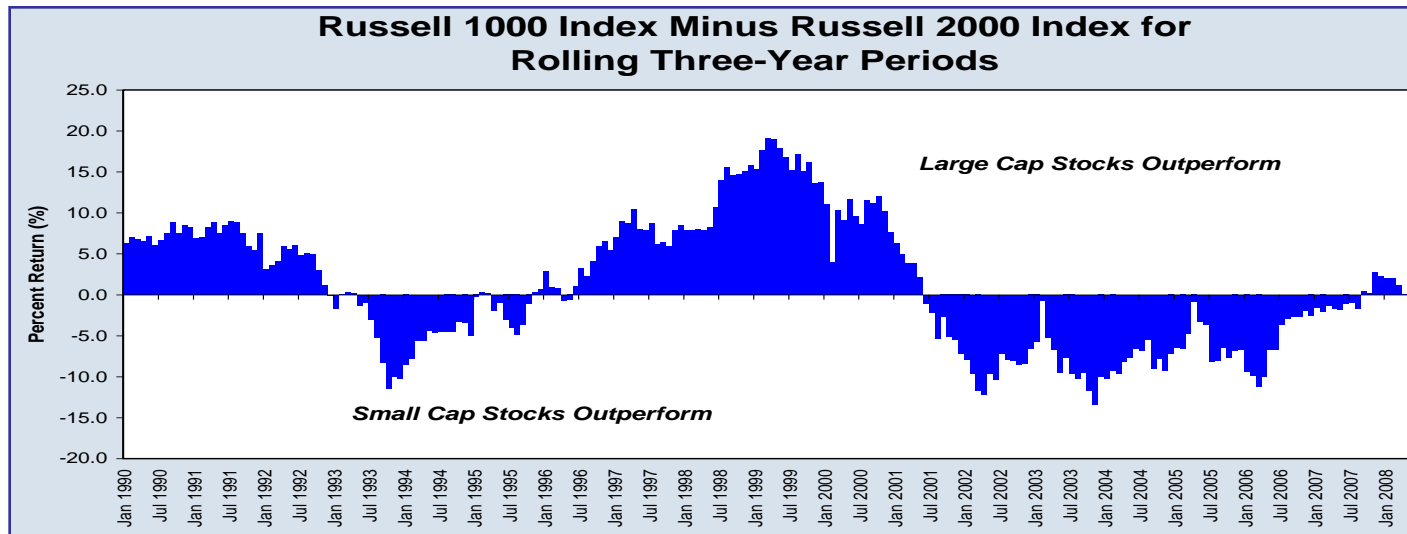
- The Russell 2000 returned 0.6% for the quarter, with 5 sectors with positive returns and 5 sectors with negative returns
- Small-cap growth stocks outperformed small-cap value stocks, returning 4.5% while value stocks returned -3.6%
- As with large- and mid-cap stocks, the energy sector performed extremely well while the financials and consumer discretionary sectors lagged

Second Quarter Sector Performance - Russell 2000 Index



Domestic Equity

Style and Market Capitalization Comparison



Second-Quarter Performance Mixed; One-Year Returns Provided Negative Results

- 2Q2008: – Growth was ahead across all market capitalizations
– Mid-cap strongest performer
- 1-Year: – Value struggled most
– Small cap lagged mid- and large-caps

2Q2008			
	Growth	Core	Value
Large	1.3%	-1.9%	-5.3%
Mid	4.7%	2.7%	0.1%
Small	4.5%	0.6%	-3.6%

1-Year Returns			
	Growth	Core	Value
Large	-6.0%	-12.4%	-18.8%
Mid	-6.4%	-11.2%	-17.1%
Small	-10.8%	-16.2%	-21.6%

Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth

Three-Year and Cumulative 3-Year Below Long-Term Expectations

- 3-Year Returns: – Growth outperformed across all styles
– Small-cap lagging continues
- Cumulative 3-Year: – Small-cap value stocks are the weakest

3-Year Returns			
	Growth	Core	Value
Large	5.9%	4.8%	3.5%
Mid	8.2%	6.8%	5.0%
Small	6.1%	3.8%	1.4%

Cumulative 3-Year			
	Growth	Core	Value
Large	18.8%	15.1%	11.0%
Mid	26.6%	22.0%	15.7%
Small	19.4%	11.8%	4.2%

Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth

Five-Year Results Vary

- 5-Year Returns: – Performance consistency within large-, mid- and small cap
- Cumulative 5-Year: – Large-cap underperformed mid- and small-cap
– Mid-cap had strongest performance across all styles

5-Year Returns			
	Growth	Core	Value
Large	7.3%	8.2%	8.9%
Mid	12.3%	13.1%	13.0%
Small	10.4%	10.3%	10.0%

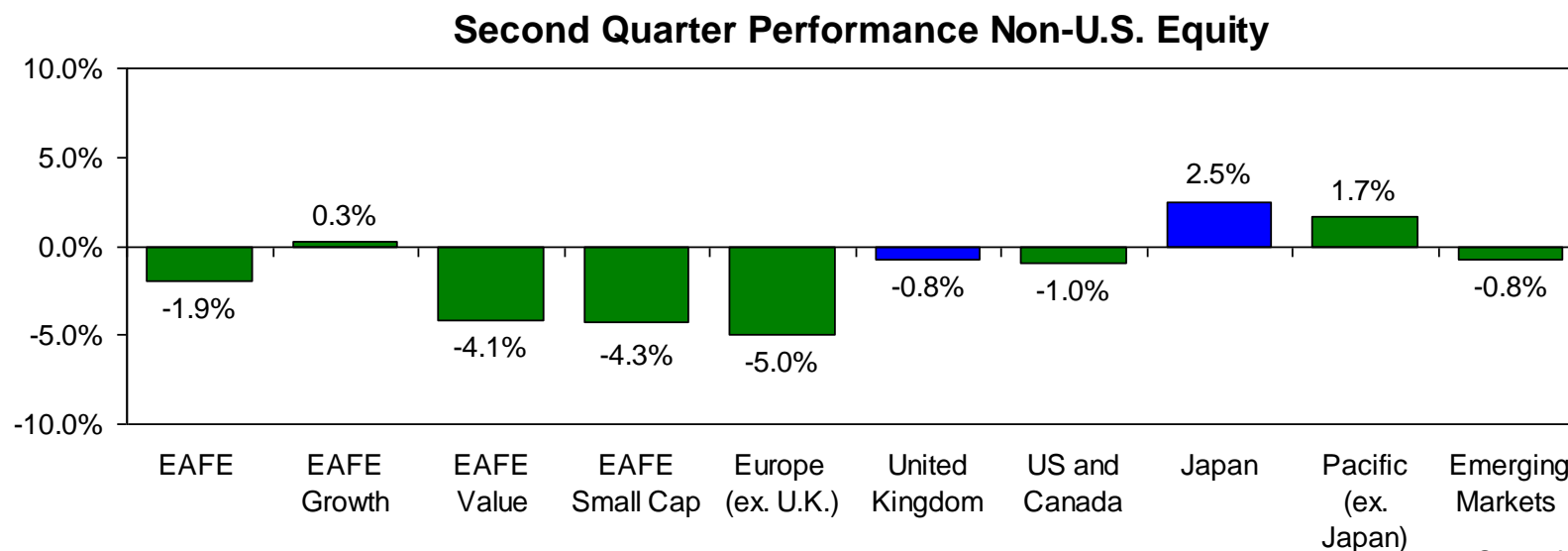
Cumulative 5-Year			
	Growth	Core	Value
Large	42.4%	48.4%	53.3%
Mid	78.8%	84.8%	84.2%
Small	63.8%	63.2%	61.2%

Note: Russell 1000, Mid-Cap, 2000 Indices: Value, Core, Growth

International Equities – Developed Markets

Non-US Equities Continued to Post Losses

- MSCI EAFE declined 1.9% (gross) in the second quarter and declined 10.2% for the year. In local currency terms, MSCI EAFE declined 0.6% for the quarter and declined 19.8% for the year
- Japan, which represents 21% of the index, posted a 2.5% return. The UK, which represents 22% of the index, posted a –0.8% return
- Most countries posted losses for the quarter. Other than Japan, only Canada, Australia, Austria and Norway posted positive returns this quarter
- Other than Australia, Singapore, Canada and the UK most countries posted higher returns in local currency terms

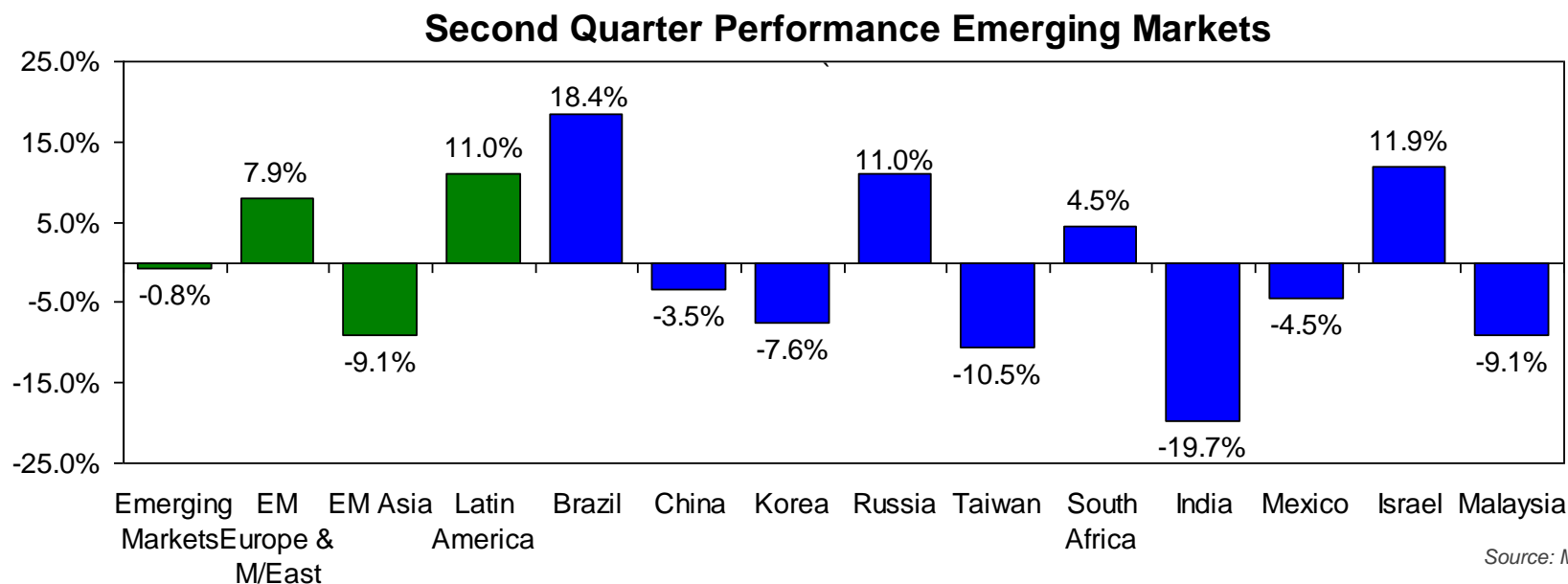


Source: MSCI

International Equities – Emerging Markets

Emerging Markets Outpaced Developed Markets

- MSCI Emerging Markets Index declined 0.8% in the second quarter but gained 4.9% for the year.
- Brazil, which represents 18% of the index, and Russia, which represents 11% of the index, were drivers of growth posting returns of 18.4% and 11.0%, respectively, for the quarter.
- Latin America led all regions with an 11.0% return.
- Top performers included Argentina, Brazil, Jordan, Israel, Czech Republic and Russia, all posting double digit gains for the quarter.
- Double digit losses occurred in Taiwan, which represents 10% of the index.



International Equity Markets' Weak Short-Term Returns

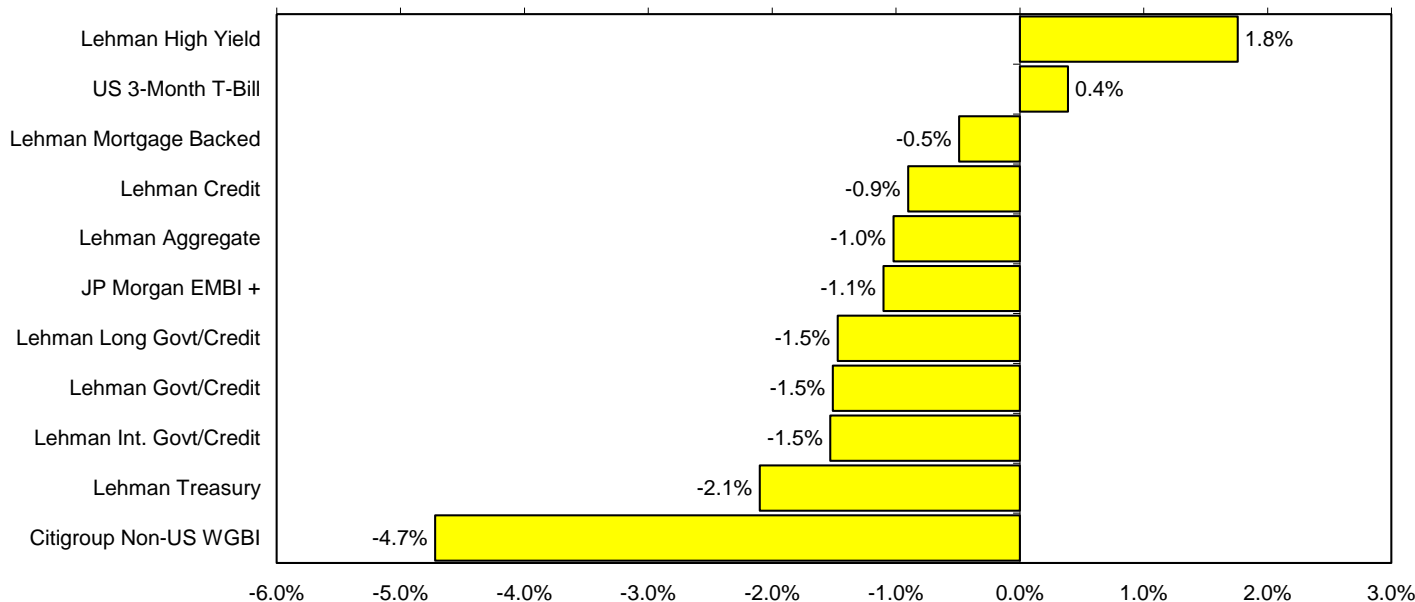
- Short-term performance:
Growth is still outperforming value and core
- Long-term performance:
Generally, returns are still above long-term expectations
- World indices ex-U.S. outperformed EAFE for all periods across all styles

As of June 2008 (Q2)	3 Months	1 Year	3 Years	5 Years
MSCI AC Wld ex US	-0.9%	-6.2%	16.2%	19.4%
MSCI AC Wld ex US Growth	1.2%	-1.1%	17.7%	18.8%
MSCI AC Wld ex US Value	-2.9%	-11.2%	14.6%	20.0%
MSCI EAFE	-1.9%	-10.2%	13.3%	17.2%
MSCI EAFE Growth	0.3%	-4.1%	15.1%	16.6%
MSCI EAFE Value	-4.1%	-16.1%	11.5%	17.6%
MSCI EAFE SC	-4.3%	-18.3%	9.7%	19.3%

U.S. Fixed Income

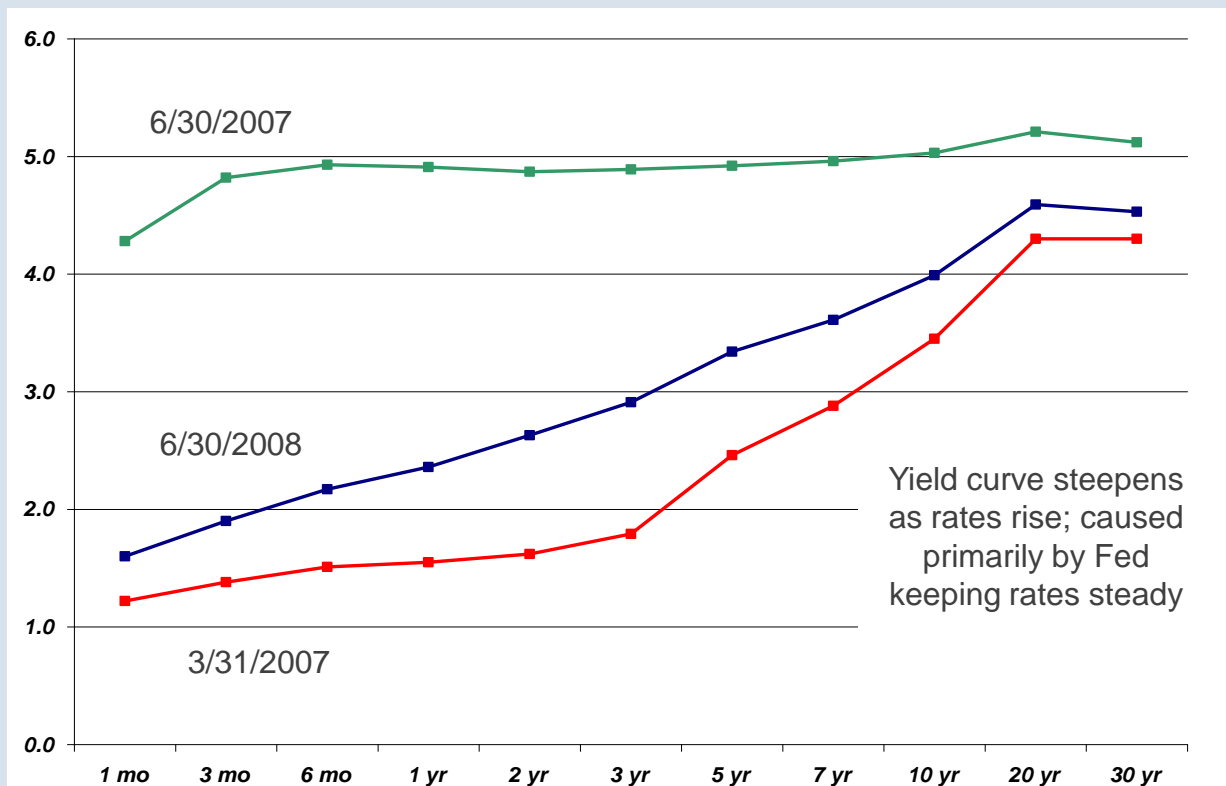
- The Federal Reserve keeps the Fed Funds and Discount Target Rate steady at 2% and 2.25% respectively after 7 consecutive cuts as inflation concerns become more prominent
 - 5-year implied inflation rose to 2.63%, highest levels since 2Q 2006
- Lehman Aggregate Index returns –1.02% for the quarter, the largest quarterly decline since the second quarter 2004
- Strong rally in high yield in April as investors sought higher yields, but appetite for risk shrank in June as news of further write-downs and trouble for financial firms
 - Lehman US High Yield Index returns 1.76% for the quarter which was primarily due to 4.31% gain in April sustaining 2.80% decline in June

Second Quarter Fixed Income Performance



US Fixed Income

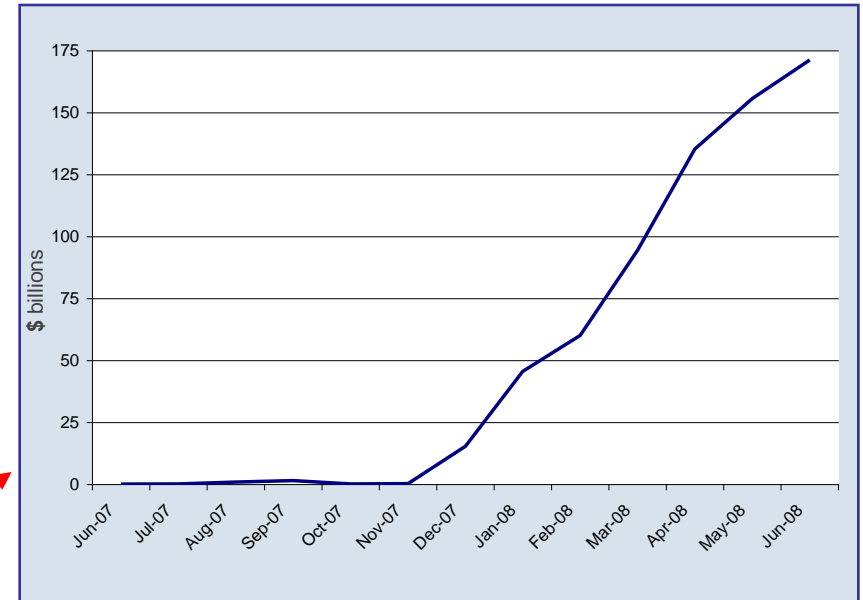
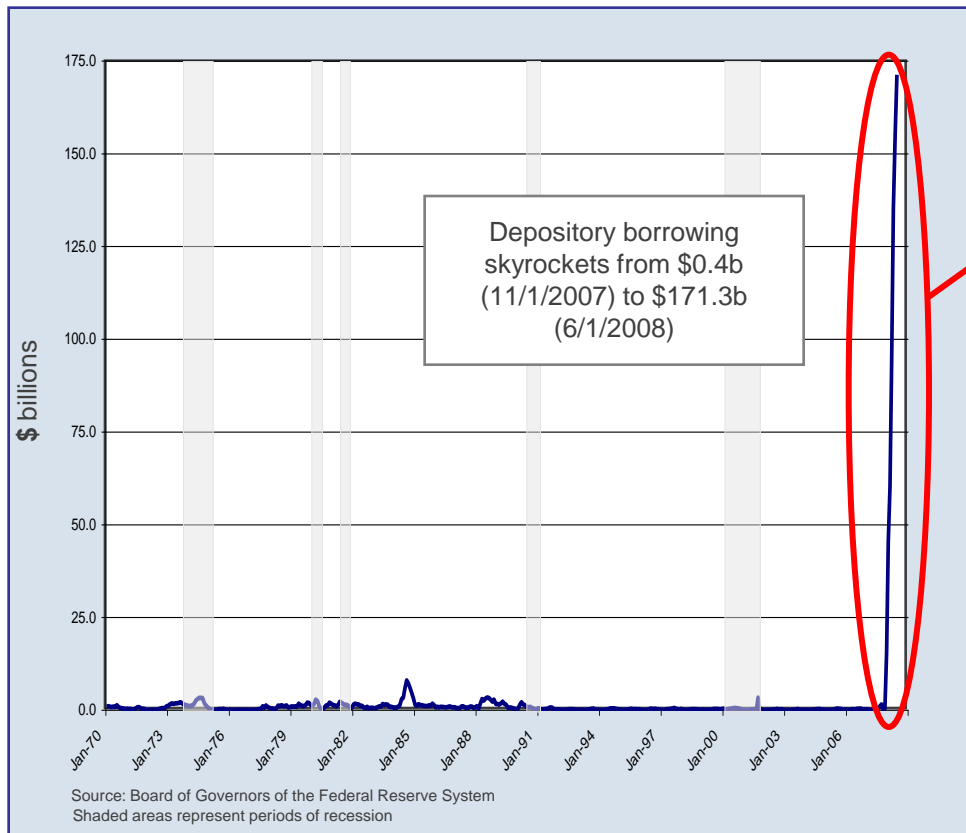
Yield Curve – 2 – Year Treasury Rises 101 bps



Source: US Department of Treasury

US Fixed Income

Total Borrowings of Depository Institutions from the Federal Reserve



US Fixed Income

Issues with Ratings Agencies

The Problem

- SEC disclosed a report analyzing the major ratings firms, including Fitch, Moody's and Standard & Poor's, which showed that conflicts of interest have led to a decrease in due diligence when rating securities, a process that was once thought to be purely objective
 - Moody's alone announced that \$1 billion worth of securities were incorrectly rated at AAA
- Moody's fired two highly ranked executives in the second quarter

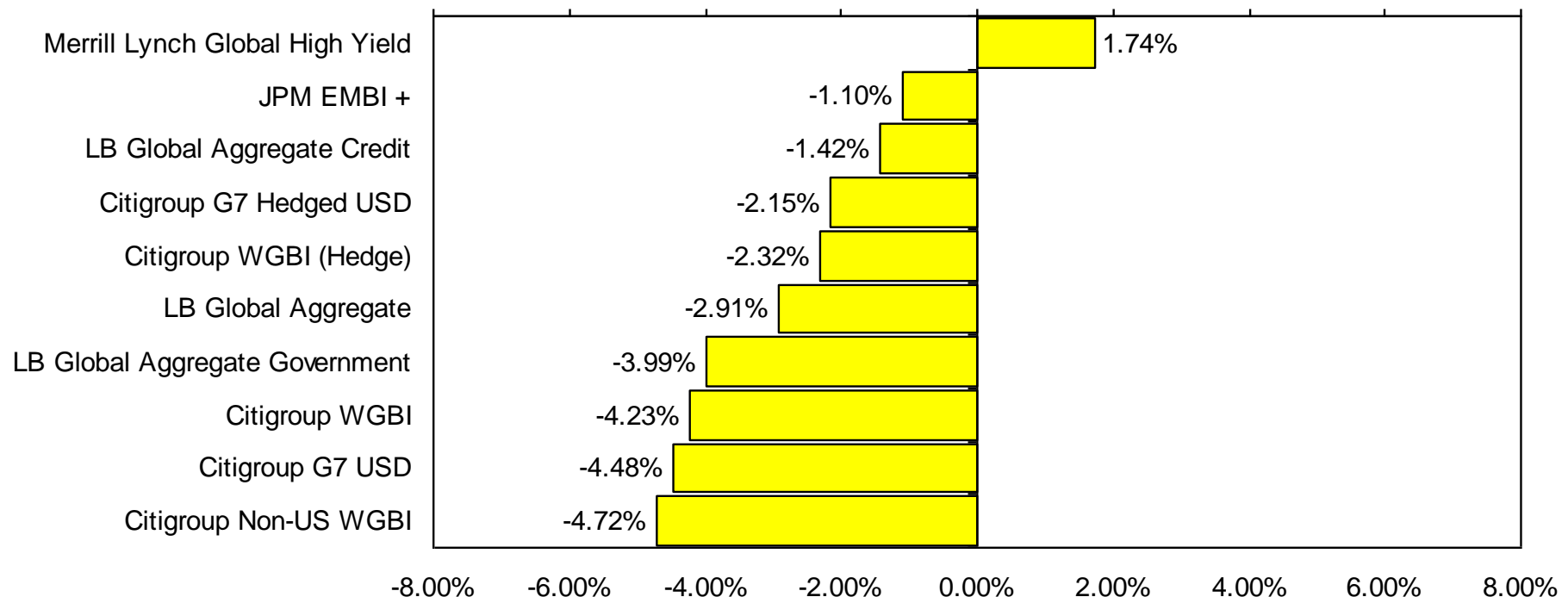
SEC Reaction

- In response, the SEC plans to moderate the longstanding importance of credit ratings across markets by:
 - (1) eliminating requirements that broker-dealers, institutional investors and money market managers must rely on the ratings of these agencies, hoping to bolster due diligence
 - (2) proposing new laws to reduce conflicts of interest and investors' reliance on the ratings
- It is seen as quite difficult, if not impossible, to move completely away from using ratings because of the number of rules and the number of agencies that use such metrics

International Fixed Income Posted Weak Returns

- Concerns over global inflation and commodity prices hurt global bonds
- Of the G7 countries, Japan was the top performer, followed by the US, Europe, and the UK
- High yield bonds posted positive returns, and emerging markets posted stronger returns than developed markets
- On a sector basis, credits outperformed government bonds

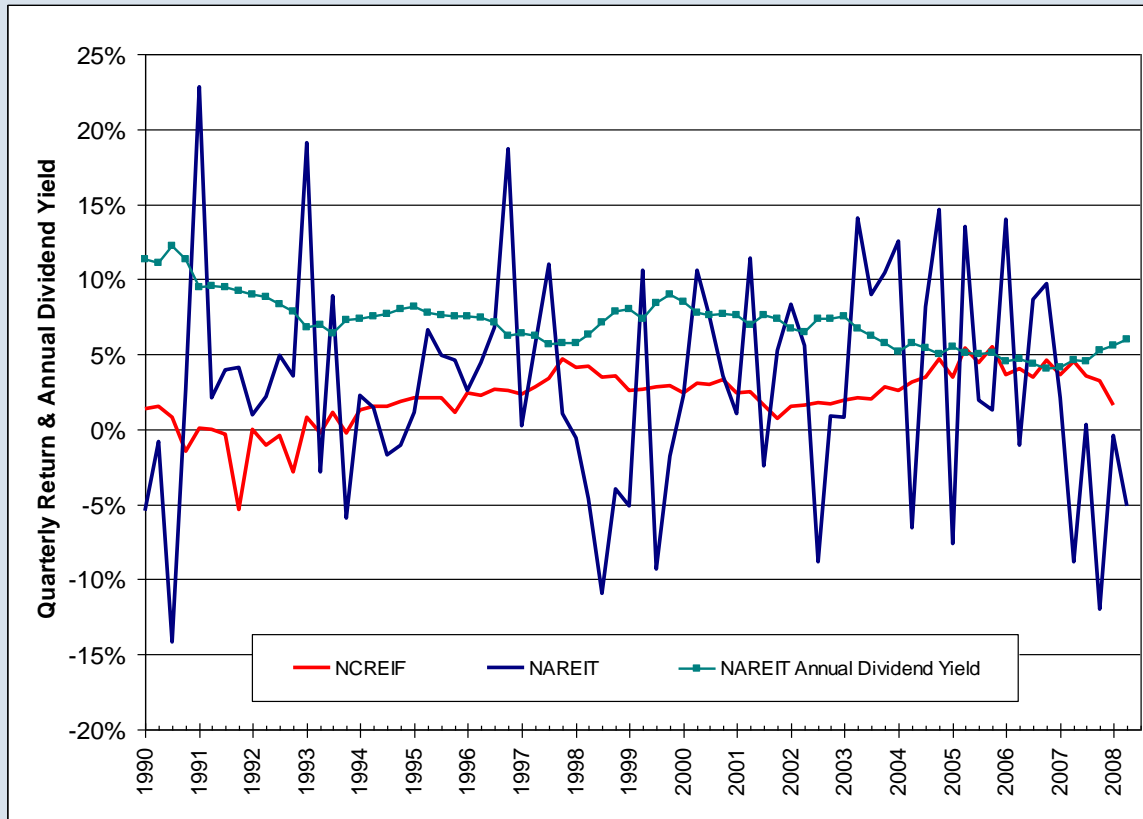
Second Quarter 2008 Fixed Income Performance



Real Estate – US REITs

NAREIT & NCREIF Indices

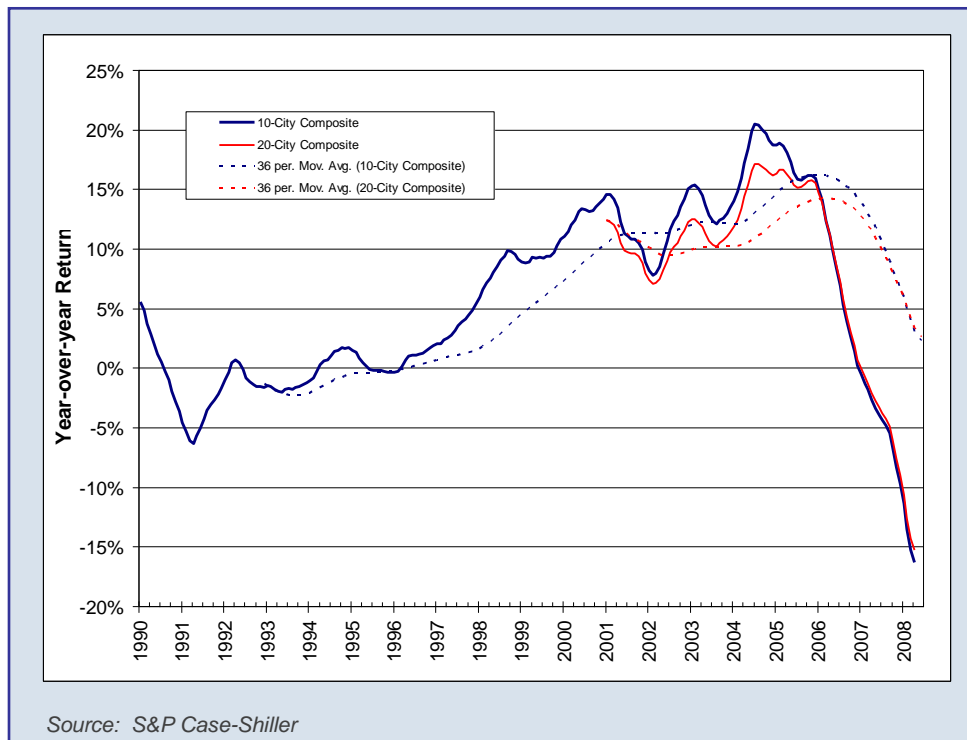
- **Public Real Estate**
NAREIT Index returned –5.1% for the second quarter of 2008 compared to –0.4% for the first quarter
- **Private Real Estate**
NCREIF Property Index was up 1.6% for the first quarter of 2008 compared to 3.2% for the fourth quarter of 2007:
 - 0.3% capital appreciation
 - 1.3% incomeSector contribution:
 - Apartment 1.3%
 - Industrial 1.4%
 - Office 2.0%
 - Hotel 1.4%
 - Retail 1.4%



Source: NCREIF & NAREIT

Real Estate – US Residential Real Estate

Case-Shiller Home Price Index

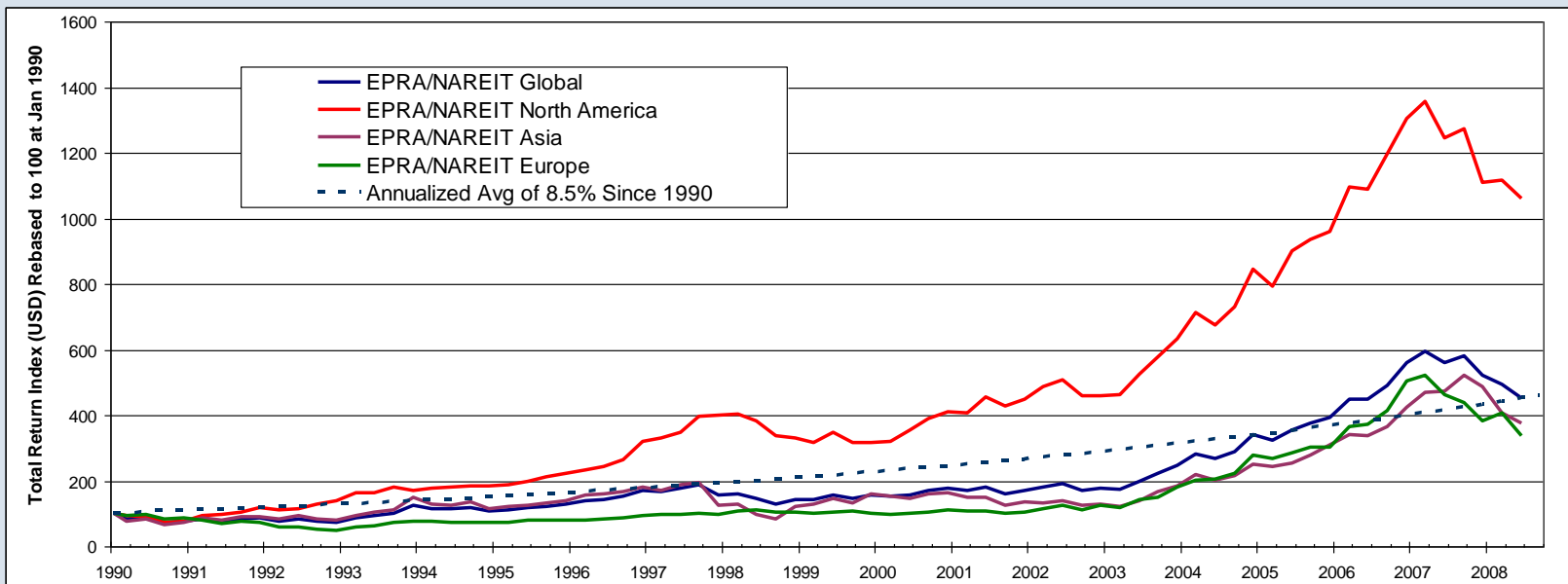


- **Residential Real Estate**
Decline in home prices continued in April, with both composites experiencing the steepest decline since the creation of the index in 1987: the 20-City Composite fell 15.3% year over year and the 10-City Composite fell 16.3% year over year
- Month-over-month returns, however, show signs of improvement with April's 20-City Composite return of -1.4% versus March's -2.2%; April had the best month-over-month return since September 2007.
- All 20 metropolitan cities posted negative 1-year returns, with Charlotte declining 0.1% Las Vegas and Miami returned -26.8% and -26.7% respectively

Real Estate – Global REITs

EPRA/NAREIT Global Real Estate Index

- The EPRA/NAREIT Global Real Estate Index posted a –8.6% return for the second quarter, following a –5.6% return for the first quarter due to continued concerns over the current economic slowdown and credit crisis
- Regional breakdown by market cap:
 - 42% to North America (EPRA/NAREIT North America Index returning –5.0%)
 - 39% to Asia (EPRA/NAREIT Asia Index returning –7.7%)
 - 19% to Europe (EPRA/NAREIT Europe Index, returning –17.0%)



Source: EPRA

Private Equity

Fundraising Mixed; Credit Crunch Still Affects Leveraged Activities

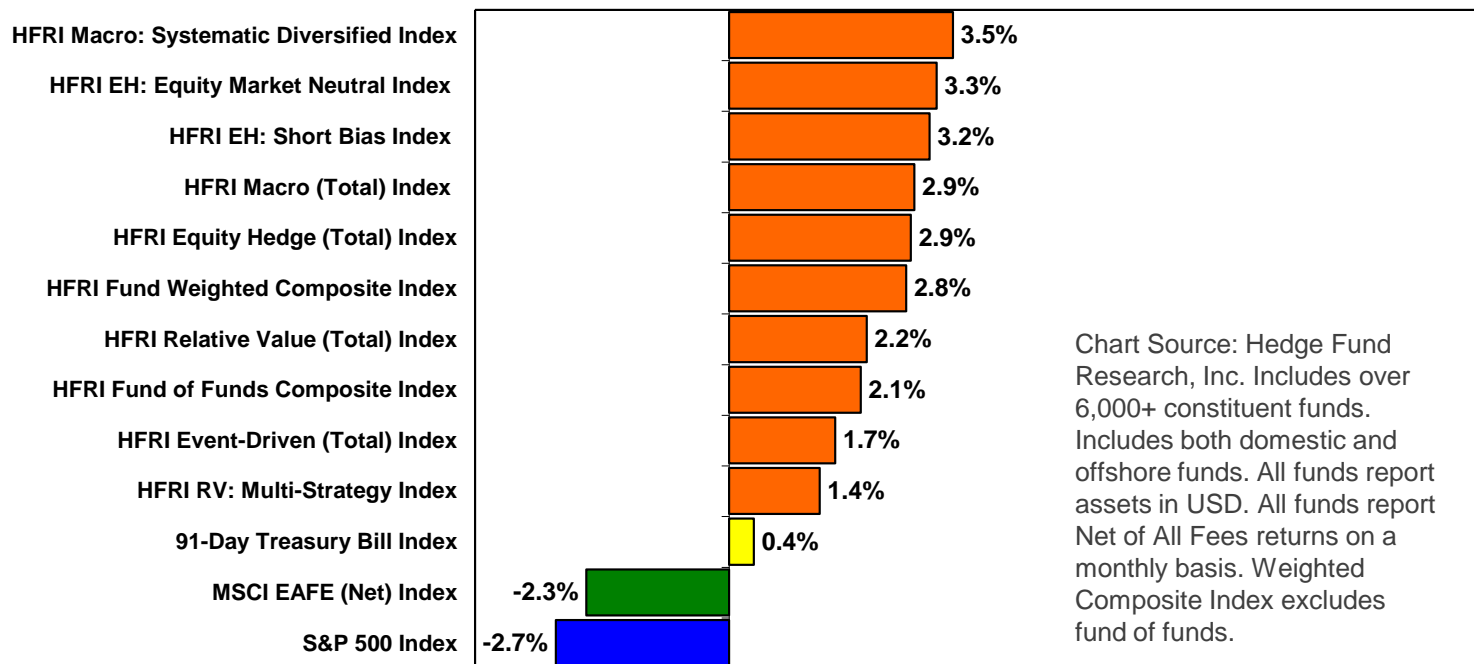
- During the first half of the year, US private equity firms raised \$132.7 billion
- Decline in LBO fundraising of 20% for the year to date as of June 30, 2008
 - \$85.5 billion was raised across 75 funds
 - Largest buyout fundraiser was Warburg Pincus Private Equity X LP, bringing in year to date \$15 billion
- Mezzanine fundraising raised \$24 billion by 7 firms
 - Goldman Sach's Mezzanine Partners V LP Fund raised \$20 billion of that amount
- Venture Capital fundraising increased by 15% for the first half of the year
 - \$11.5 billion was raised across 72 funds
 - Largest venture capital fundraiser, Lightspeed Venture Partners VIII LP, brought in \$800 million
- European private equity firms reported a 16% increase to \$61.1 billion, mostly brought in by buyout funds
 - European buyouts accounted for \$54.8 billion of the \$61.1 billion

Source: Washington Business Journal

Hedge Funds

- Even through a struggling June, hedge funds ended with positive results across most sectors, recouping most of the losses from the first quarter of 2008
- Macro strategies provided the strongest preliminary returns for the first quarter. Relative value strategies provided the weakest preliminary returns during the second quarter
- As of May 2008, Morningstar recorded YTD asset flows ranging from –\$1.8 billion in the multi-strategy hedge fund space to \$6.1 billion in the Global Trend hedge fund space*

Second Quarter Hedge Fund Returns



* Source is msn.com, article - Morningstar, Inc. Reports Second-Quarter 2008 Hedge Fund Performance and Asset Flows

Global Macro/GTAA

- Performance has improved since the very weak returns in Q4 2007
- Relative to other hedge fund strategies, Global Macro has done well in 2008:

HFRX Index	MTD	YTD	2007 TOTAL	2006 TOTAL	2005 TOTAL	2004 TOTAL	2003 TOTAL
HFRX Global Hedge Fund Index	-2.01	-3.02	4.23	9.26	2.72	2.69	13.39
HFRX Macro Index	-1.27	12.65	3.19	5.61	6.67	-0.32	14.61

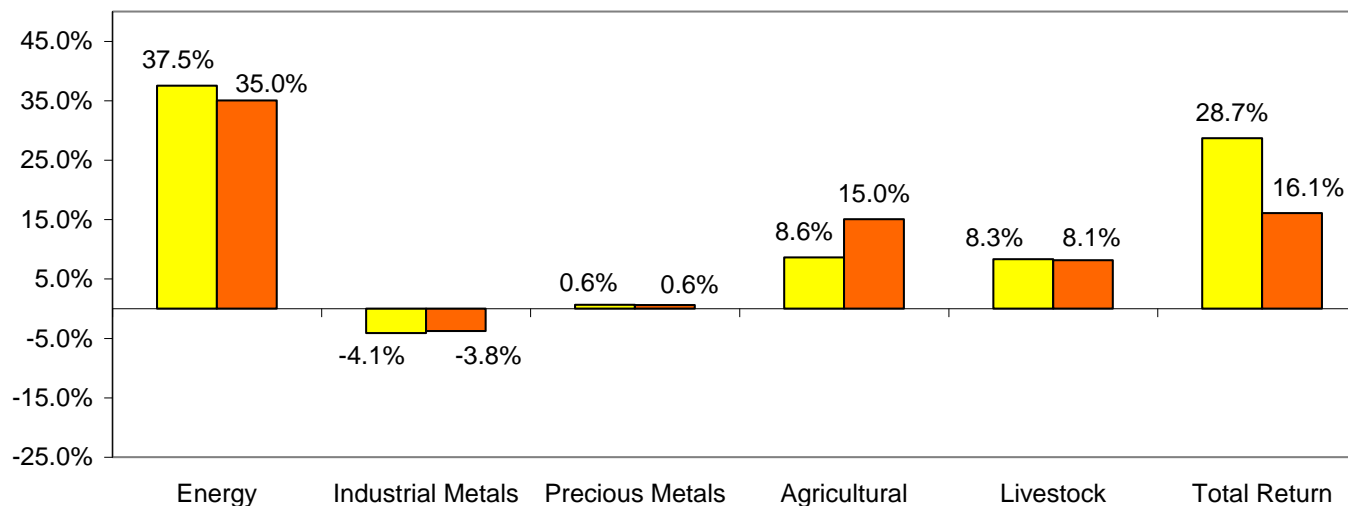
- Developed markets currencies have proved difficult, with the carry trade providing choppy returns
- Trend following has proven profitable as numerous assets have had large and sustained moves (oil, equity indices)
 - Emerging markets currencies and in some cases emerging markets equities continue to be added to GTAA strategies offered by a number of managers

Commodities

Strong Performance as Crude Oil Nears \$140 a Barrel

- The S&P GSCI posted a 28.7% QTD return and 41.4% YTD return; the DJ-AIGCI posted a 16.1% QTD return and 27.2% YTD return
- Energy was the strongest-performing sector followed by the Agricultural sector.
 - Certain agriculture sub-sector prices were supported by the reduced supply due to flooding in the Midwest US (i.e., corn, wheat and soybean)
- Industrial metals was the worst-performing sector for the quarter, in part because a strong supply of lead, nickel and zinc

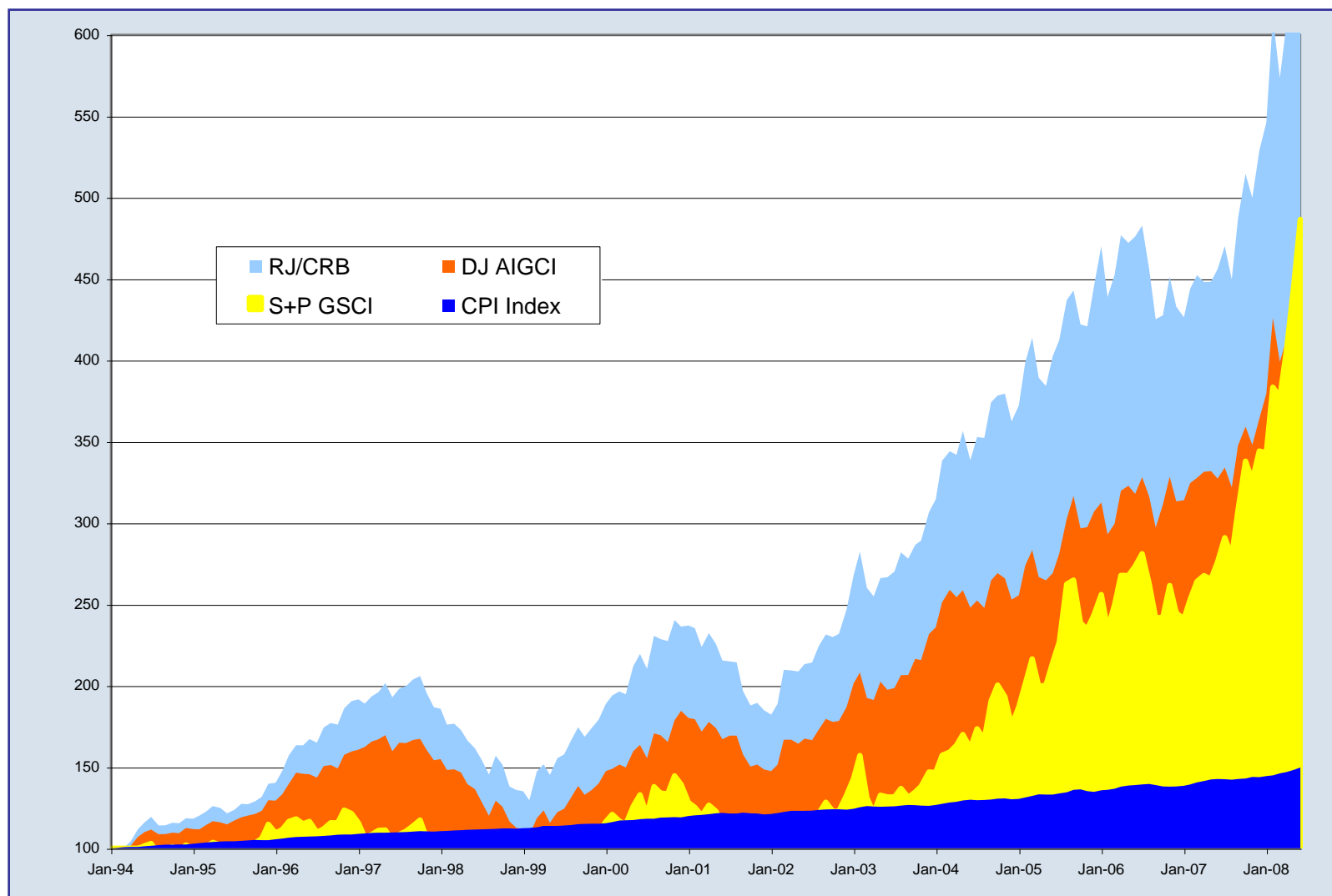
Second Quarter Return Commodities



Sector Breakdown

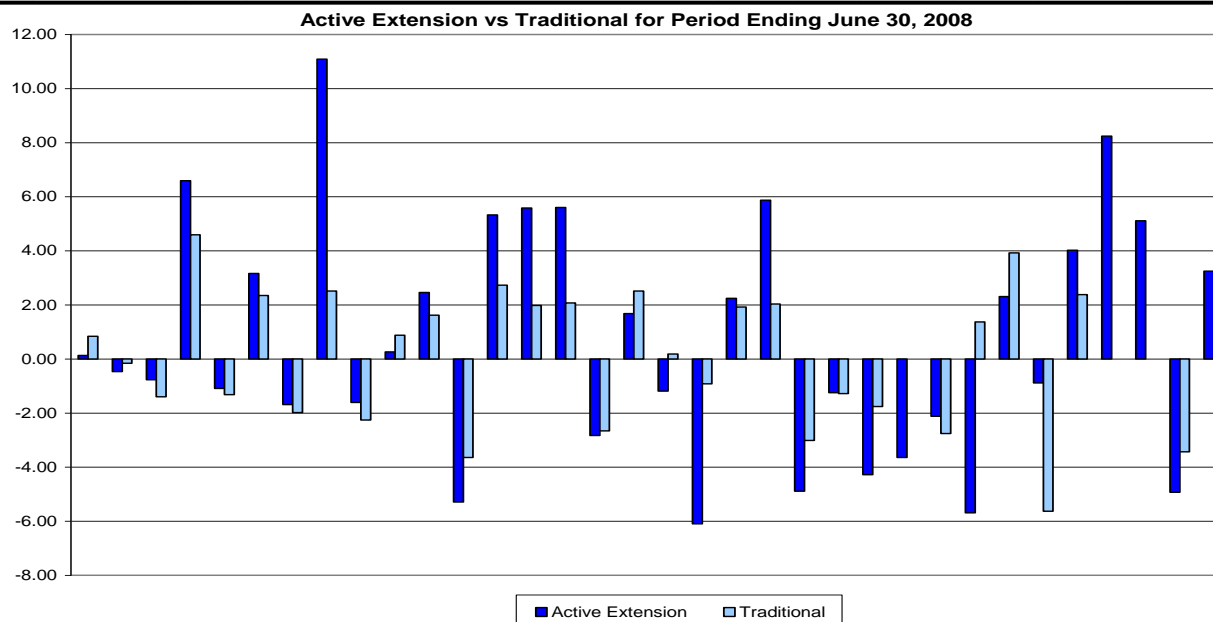
	Energy	Industrial Metals	Precious Metals	Agricultural	Livestock	Total Return
S&P GSCI	78.1%	5.8%	1.7%	11.6%	2.8%	100.0%
DJ AIGCI	39.6%	17.1%	8.5%	28.3%	6.6%	100.0%

Commodities Indices and CPI



Active Extension

Traditional Universe											Active Extension									
Returns for periods ended 30 June 2008																				
	3 Months		6 Months		1 Year		2 Years		3 Years		3 Months		6 Months		1 Year		2 Years		3 Years	
	(%)	Perc	(%)	Perc	(%)	Perc	(% pa)	Perc	(% pa)	Perc	(%)	Perc	(%)	Perc	(%)	Perc	(% pa)	Perc	(% pa)	Perc
Number of Funds	32		32		32		32		31		34		34		34		19		7	
Maximum	3.51		-6.63		-7.77		6.37		7.70		4.86		-5.27		-1.27		14.85		11.07	
5th Percentile	2.79		-7.33		-9.09		5.58		7.11		3.38		-6.16		-5.19		10.49		10.77	
Upper Quartile	0.24		-9.29		-10.26		4.39		6.70		1.19		-8.50		-8.53		5.36		9.61	
Median	-1.10		-10.36		-11.50		3.24		5.36		-0.71		-9.88		-12.53		3.40		8.29	
Lower Quartile	-2.13		-11.29		-14.17		2.19		4.57		-3.78		-15.19		-17.79		0.25		6.03	
95th Percentile	-3.69		-12.97		-15.89		0.37		3.61		-2.22		-12.42		-14.37		1.80		6.12	
Minimum	-4.48		-15.72		-17.99		-1.27		-1.50		-4.42		-16.49		-18.46		-0.25		6.00	
Russell 1000	-1.89	(68)	-11.20	(73)	-12.36	(57)	2.73	(59)	4.81	(66)	-1.89	(69)	-11.20	(70)	-12.36	(49)	2.73	(56)	4.81	(100)
S&P 500	-2.73	(84)	-11.92	(88)	-13.12	(61)	2.36	(73)	4.40	(79)	-2.73	(83)	-11.92	(73)	-13.12	(54)	2.36	(60)	4.40	(100)



Impacts for ASRS Portfolio

Positive

- Emphasis of growth manager across market capitalization and mid-caps
- Active extension allocation; the median of active extension manager outperformed the traditional universe
- Inclusion of non-developed markets in international equity
- GTAA/Global Marco performance has improved and did better than other hedge fund strategies

Negative

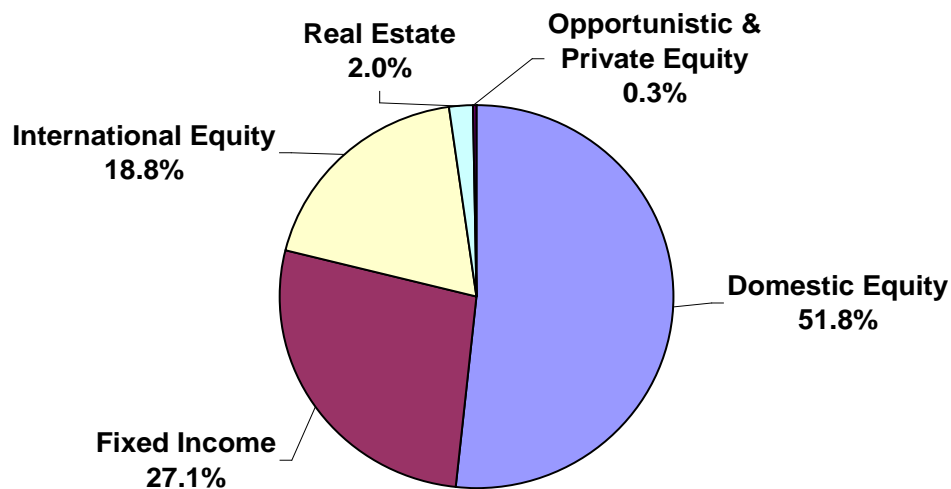
- Large cap core “home bias”
- Allocation to large- and small-cap value particularly in the international space
- Exposure to real estate as housing market remained bleak
- Limited exposure (GTAA) to commodities

ASRS Total Fund Performance

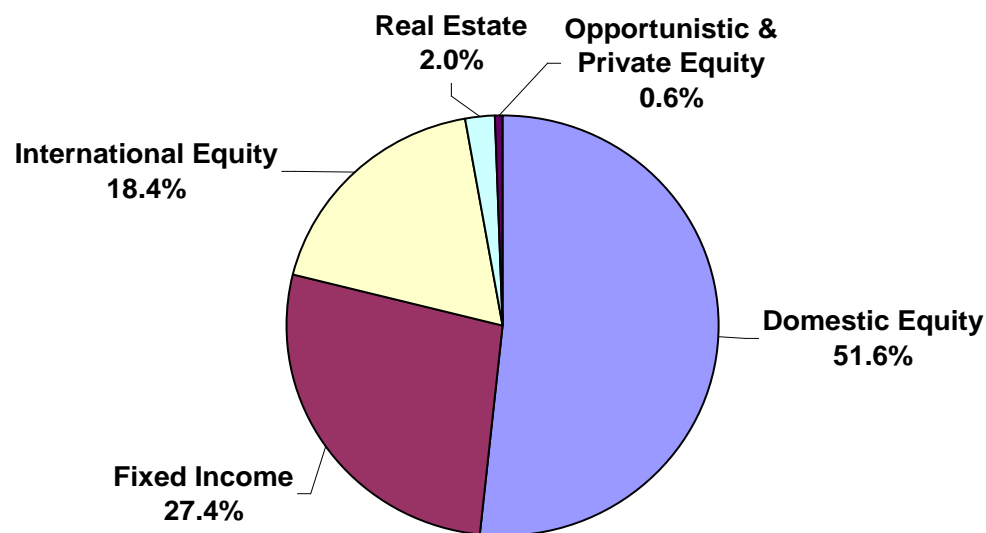
Total Fund Asset Allocation

June 30, 2008

**Policy Adjusted for Transition into
Real Estate and Private Equity**



Actual Asset Allocation*

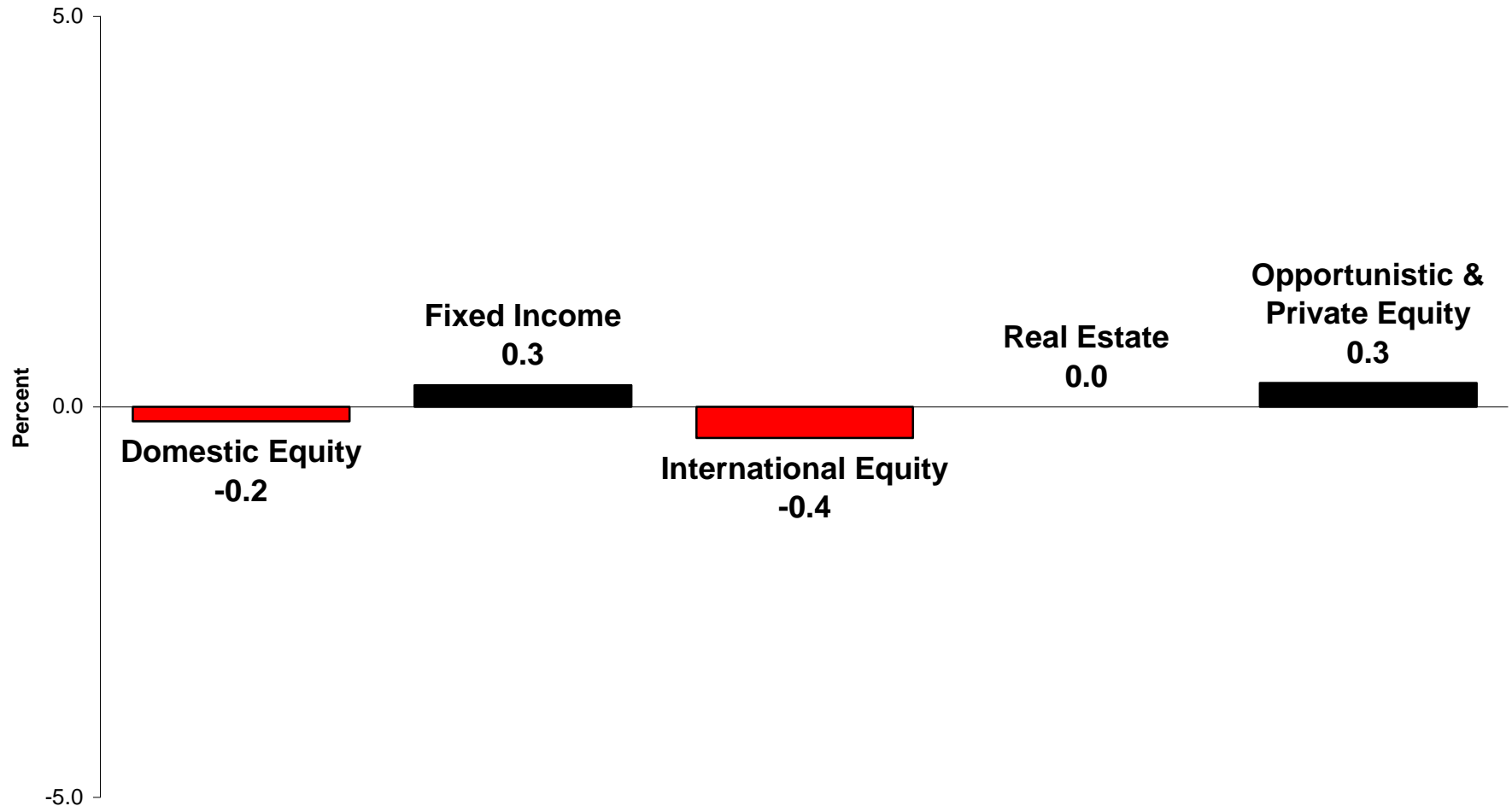


*Notional values were used for the GTAA strategy.

Note: Real Estate and Private Equity market values are reported on a quarter-lag

Total Fund Asset Allocation June 30, 2008

Actual Asset Allocation vs. Policy Adjusted for Transition into Real Estate and Private Equity



Total Fund Performance

For Periods Ending June 30, 2008

	<u>Quarter</u>	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>10 Years</u>	<u>Inception</u>
1) ASRS Total Fund (Net)	-1.0%	-7.6%	6.1%	8.8%	5.5%	10.4%
Benchmark*	-0.9%	-5.6%	6.8%	8.7%	4.8%	10.3%
Excess Return	-0.1%	-2.0%	-0.7%	0.1%	0.7%	0.1%

* Interim Benchmark (current): 38% S&P 500, 7% S&P 400, 7% S&P 600, 27% LB Aggregate, 19% MSCI ACWI ex US, and 2% NPI+100 bps

Note: Interim Benchmark incorporates a proration of 4% real estate and 5% private equity

Policy History:

- 7/1/75-12/31/79 – 40% S&P 500/60% LB Aggregate
- 1/1/80-12/31/83 – 50% S&P 500/50% LB Aggregate
- 1/1/84-12/31/91 – 60% S&P 500/40% LB Aggregate
- 1/1/92-12/31/94 – 50% S&P 500/40% LB Aggregate/10% EAFE
- 1/1/95-6/30/97 – 45% S&P 500/40% LB Aggregate/15% EAFE
- 7/1/97-12/31/99 – 50% S&P 500/35% LB Aggregate/15% EAFE
- 1/1/00-9/30/03 – 53% S&P 500/30% LB Aggregate/17% EAFE
- 10/1/03-12/31/06 – 53% S&P 500/26% LB Aggregate/15% MSCI EAFE/ACWI ex US⁽¹⁾/6% NPI+100 bps
- 1/1/07-present – 31% S&P 500/7% S&P 400/7% S&P 600/26% LB Aggregate/18% MSCI ACWI ex US/6% NPI+100 bps/5% Russell 3000+300 bps

⁽¹⁾ MSCI EAFE/ACWI ex US Benchmark is the MSCI EAFE prior to 10/1/05 and the MSCI ACWI ex US thereafter

Total Fund Performance For Periods Ending June 30, 2008

	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>10 Years</u>	<u>Inception</u>
ASRS Total Fund (Net)	-7.6%	6.1%	8.8%	5.5%	10.4%
2) Actuarial Assumption	8.0%	8.0%	8.0%	8.0%	7.6%
Excess Return	-15.6%	-1.9%	0.8%	-2.5%	2.8%
3) Asset Allocation Target	8.3%	7.8%	7.7%	8.1%	N/A
Excess Return	-15.9%	-1.7%	1.1%	-2.6%	N/A
4) CPI Inflation + 3.75%	8.7%	7.7%	7.2%	6.7%	7.6%
Wage Inflation + 3.75%	10.9%	9.7%	8.1%	7.7%	8.3%
Excess Return - CPI	-16.2%	-1.6%	1.5%	-1.2%	2.8%
Excess Return - Wage	-18.4%	-3.6%	0.7%	-2.2%	2.2%

Supplemental Comparison Information*

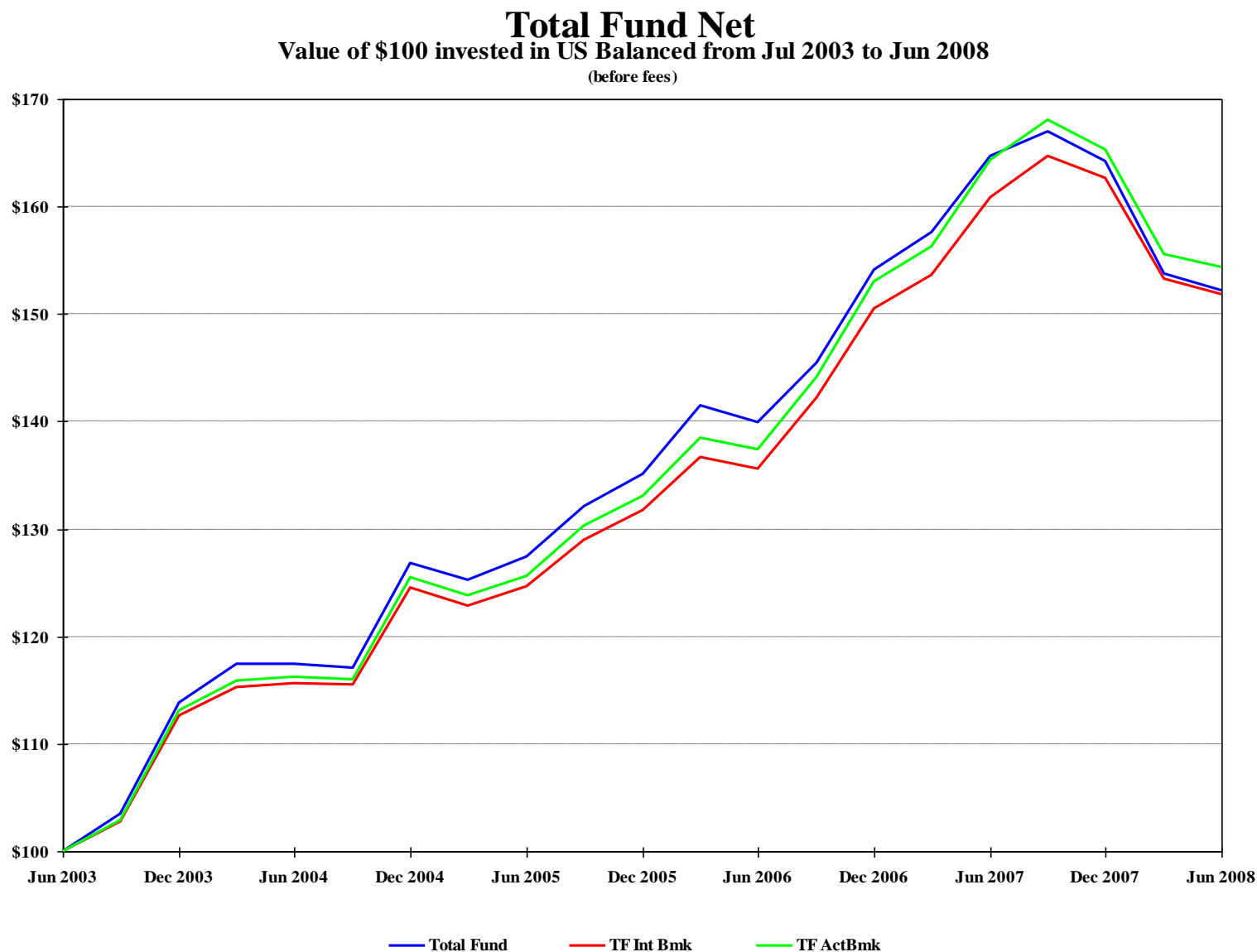
For Periods Ending June 30, 2008

	1 Year	3 Years	5 Years	10 Years	15 Years
Russell/Mellon Trust Universes					
Master Trust Funds - Total Funds	88	69	61	63	59
Total Funds - Public	92	82	78	85	66
Total Funds Billion Dollar - Public	95	86	82	91	70
Total Funds - Corporate	88	64	57	58	59
Wilshire Trust Universe Comparison Service					
Master Trusts - All	84	51	41	54	46
Public Funds	86	58	50	54	31
Public Funds Greater than \$1.0 Billion	96	83	76	72	43
Corporate	78	50	44	57	62
Callan Associates Inc.					
Total Funds	82	63	56	64	60
Public Funds	89	65	54	68	51
Public Funds - Large (>1B)	96	86	75	78	58
Corporate Funds	84	62	56	64	65

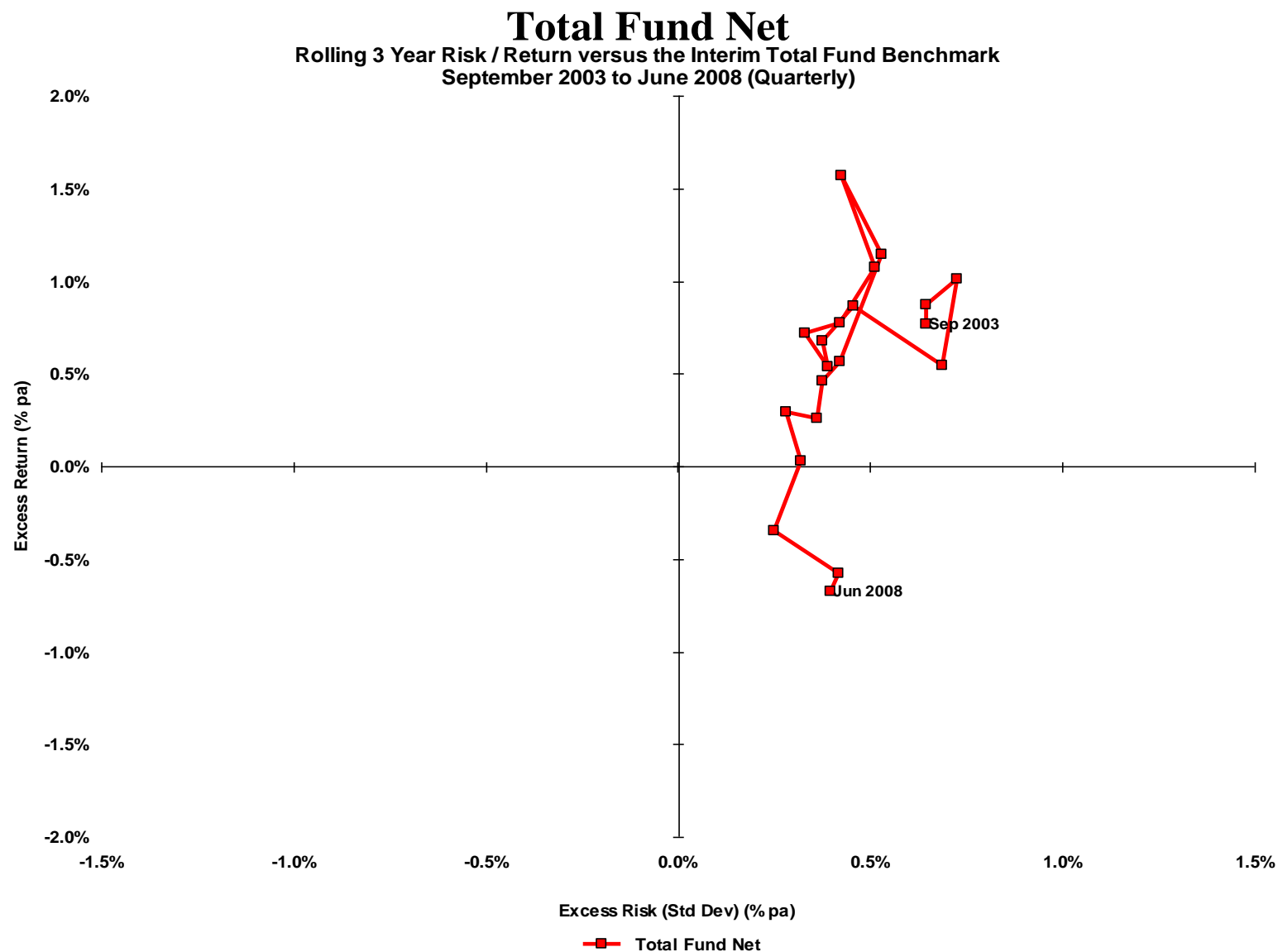
*The information contain herein is for comparison purposes only and is not a Total Fund performance benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive, several funds are included in multiple peer groups, peer groups are constructed using gross of fees returns, and survivorship bias in that poorly performing funds may no longer continue to report results.

Note: Universes are constructed with gross of fees returns; therefore, the ASRS rank is based on gross of fees returns.

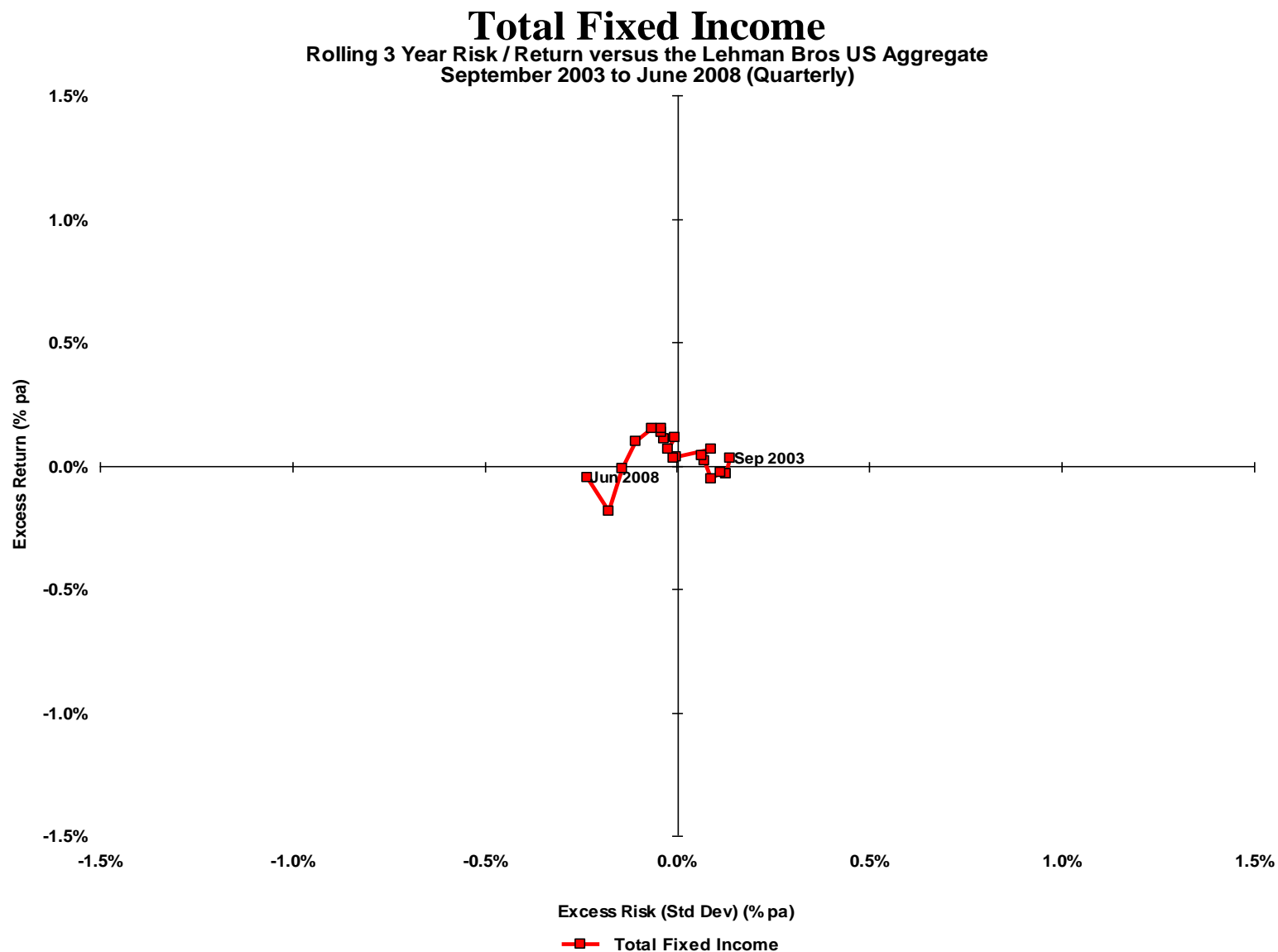
Total Fund Growth



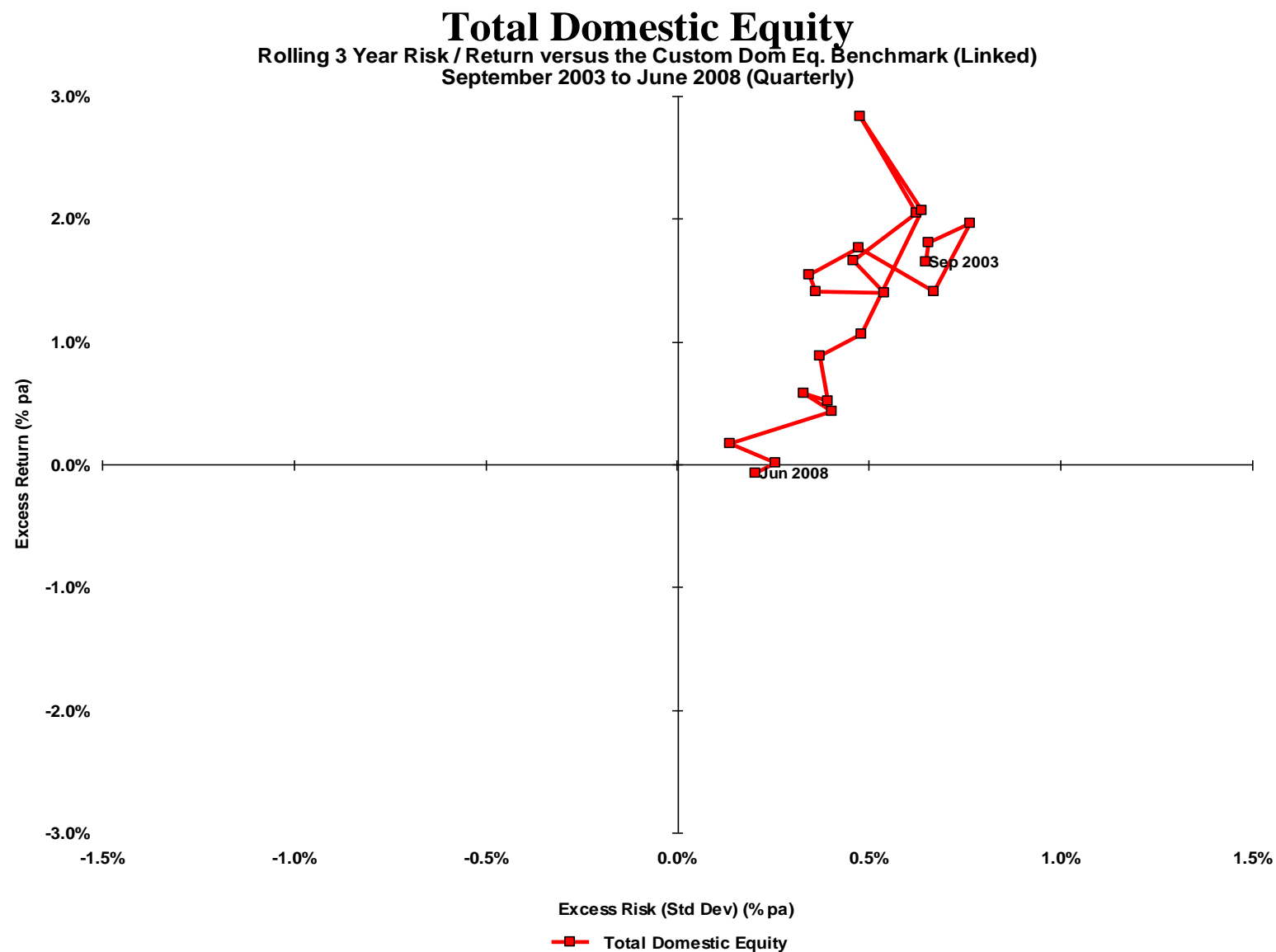
Risk/Return Analysis



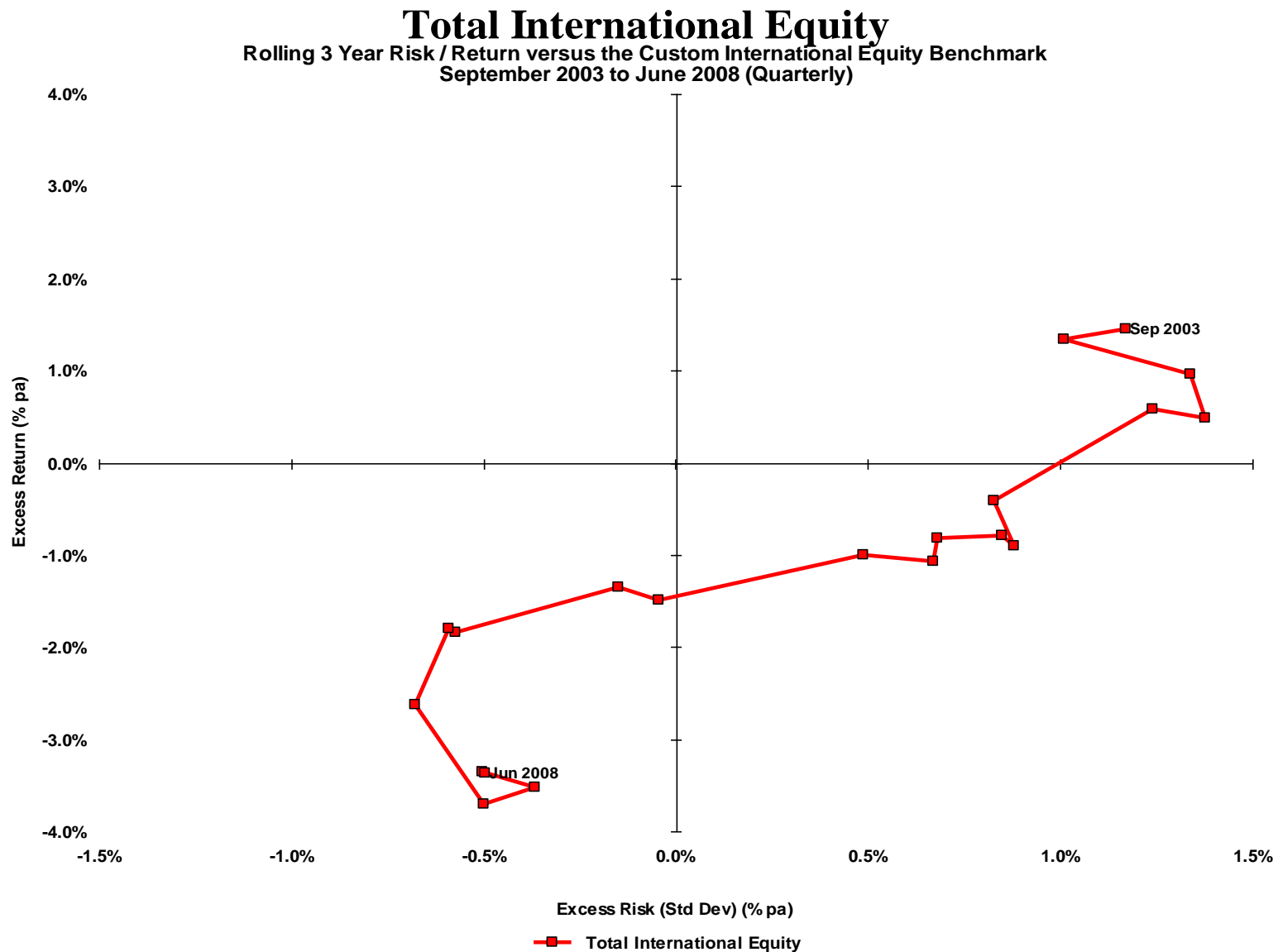
Risk/Return Analysis



Risk/Return Analysis



Risk/Return Analysis



Performance vs. Benchmarks

For the 3 Years Ending June 30, 2008

	<u>Return</u>	<u>Assumed ROR</u>	<u>Std. Dev.</u>
Total Fund	6.1%	7.8%	7.1%
Benchmark ⁽¹⁾	6.8%		6.7%
Domestic Fixed	4.0%	4.7%	3.1%
LB Aggregate	4.1%		3.3%
Domestic Equity	4.8%	8.5%	9.4%
S&P Custom Bmk ⁽²⁾	4.9%		9.2%
Intl. Equity	12.3%	8.7%	11.2%
MSCI Custom Bmk ⁽³⁾	15.7%		11.7%
Real Estate	N/A	7.2%	N/A

⁽¹⁾ Interim Benchmark (current): 38% S&P 500, 7% S&P 400, 7% S&P 600, 27% LB Aggregate, 19% MSCI ACWI ex US, and 2% NPI+100 bps

Note: Interim Benchmark incorporates a proration of 4% real estate and 5% private equity

⁽²⁾ S&P 500 prior to 1/1/07 and 74% S&P 500, 13% S&P 400, 13% S&P 600 thereafter

⁽³⁾ MSCI EAFE/ACWI ex US Benchmark is the MSCI EAFE prior to 10/1/05 and the MSCI ACWI ex US thereafter

Performance vs. Benchmarks

For the 5 Years Ending June 30, 2008

	<u>Return</u>	<u>Assumed ROR</u>	<u>Std. Dev.</u>
Total Fund	8.8%	7.7%	7.5%
Benchmark ⁽¹⁾	8.7%		7.0%
Domestic Fixed	3.8%	4.7%	3.4%
LB Aggregate	3.9%		3.5%
Domestic Equity	8.8%	8.6%	9.9%
S&P Custom Bmk ⁽²⁾	7.9%		9.5%
Intl. Equity	16.1%	8.7%	12.5%
MSCI Custom Bmk ⁽³⁾	18.6%		12.6%
Real Estate	N/A	-	N/A

⁽¹⁾ Interim Benchmark (current): 38% S&P 500, 7% S&P 400, 7% S&P 600, 27% LB Aggregate, 19% MSCI ACWI ex US, and 2% NPI+100 bps

Note: Interim Benchmark incorporates a proration of 4% real estate and 5% private equity

⁽²⁾ S&P 500 prior to 1/1/07 and 74% S&P 500, 13% S&P 400, 13% S&P 600 thereafter

⁽³⁾ MSCI EAFE/ACWI ex US Benchmark is the MSCI EAFE prior to 10/1/05 and the MSCI ACWI ex US thereafter

MERCER



MARSH MERCER KROLL
GUY CARPENTER OLIVER WYMAN